

ENGINEERING HERITAGE AUSTRALIA

ORAL HISTORY PROJECT

TRANSCRIPT OF INTERVIEW WITH

MENNO HENNEVELD AM

Interviewer	Doug Ayre
Transcriber	Mary Macfarlan History Development Pty Ltd
Date of Interview	17 August 2018
Duration	3 hours 49 minutes

NOTES TO THE READER ON INTERPRETATION OF THIS TRANSCRIPT

Readers of this oral history transcript need to be aware that it has been edited to meet the requirements of the interviewee and though it is a near verbatim transcript of the words as spoken during the interview there is some variation. The interview was conducted in the form of a natural conversation between the interviewer and the person being interviewed and the changes have been made to facilitate the flow of the document.

Much of what is said in such interviews relies upon the accuracy of the memory of the person being interviewed and readers should bear this in mind and judge for themselves how factually accurate the material is. The interviewer has sought to clarify or verify facts and statements made during the interview where this seemed appropriate.

The views and opinions expressed within the transcript are those of the person expressing them in the interview.

Please refer to the notes on the following page to aid interpretation of the transcript.

Note 1

The recording, in 8 parts, runs for a total of 3 hours and 49 minutes

Note 2

Where the interviewer has used words such as ‘Yes’, ‘Right’ or ‘OK’ as an encouragement, but not as anything else then these words have not been transcribed unless they are relevant for the context. Commonly used habitual phrases have also been deleted from the transcript where appropriate.

Note 3

The interviewer has inserted occasional words (which are not in the original recording) into the transcript in order to clarify the context of what was being said. These words are shown in the form [they would say].

Note 4

Where a sentence has a series of dots in the text such as this indicates that the speaker paused, the recording was not clear enough to transcribe accurately what was said or the following speaker interrupted what was being said.

Note 5

The interviewer is referred to as ‘DAA’ in the transcript and to the subject speaker is referred to as ‘MH’ as appropriate.

CONTENTS

Track/ Time	Page	Topic
1/00	5	Introduction and background.
1/04	7	Cadetship and early work in WA Public Works Department.
1/07	8	Hydraulic modelling studies at the Engineering Research Station.
1/17	11	Post Graduate Diploma in Administration.
1/19	12	Mandurah and work on deep sewerage. Wagon and pipeline work.
2/01	16	Kununurra and work on the Ord River Project.
2/09	19	Return to Perth. Move to Bunbury and general construction work.
2/10	19	Developing interest in occupational health and safety.
2/13	21	Support for cadetship training concept and practical experience.
2/17	23	Merredin. Water supply and the Goldfields Water Supply Scheme.
2/27	26	Collie. Wellington Dam salinity issue and rehabilitation of land.
3/05	30	Appreciation of his wife. Comments on water source history and heritage. Management of salinity related to scientific factors.
3/21	37	Appointment as Regional Engineer for the South West.
3/22	37	Role as Executive Engineer. Development of strategic planning.
3/24	38	Changes in office methods and technology since 1972.
4/00	41	Formation of the Water Authority and associated issues.
4/10	44	Role as Manager of Construction Branch and Major Projects Branch.
4/12	46	Introduction of project management with contract work.
4/15	46	Large dam building programme.
4/17	47	The introduction of partnerships and alliancing in contract work.
4/20	48	Concept of the Government Trading Enterprise.
4/22	49	Appointed General Manager of Engineering Services.

4/23	49	Impact of the McCarrey Report.
4/25	50	Sale of various Branches to private enterprise and related issues.
4/26	52	Leadership and managing downsizing.
5/03	53	Concept and principles of alliancing in practice and sharing of risks.
5/15	58	Role as General Manager of Customer Services in Water Corporation.
5/17	59	Development of a customer focus and customer service strategy.
5/18	59	Establishing Customer Contact Centre and Customer Advisory Council.
5/20	59	Winning a National Customer Service Award.
5/21	61	Setting up Quality Management System / Water Management System.
5/23	62	Leaving Customer Services and becoming Group Director Major Projects.
5/23	62	Transferring irrigation schemes to private ownership.
5/25	63	Involvement with the Woodman Point Waste Water Treatment Plant and Perth's first Sea Water Desalination Plant
6/00	65	Appointment as the Commissioner of Main Roads in 2002.
6/01	65	Challenges to face in Main Roads.
6/03	66	Establishing strategic planning and core values.
6/05	67	Establishing a value-based decision-making organisation.
6/13	71	Identifying the road users as customers.
6/14	71	Establishing customer service as part of the strategic plan.
6/20	74	Involvement with Austroads and the World Road Association.
6/23	75	Development of the Main Roads Sustainability Strategy.
6/24	76	Involvement with Infrastructure Sustainability Council of Australia
6/27	77	The Gateway Project and planning of major projects.
7/05	79	Family role in helping to achieve career milestones.

7/09	81	Issue with the increasing backlog of maintenance.
7/12	83	Risk Management approach as part of strategic planning, design standards and engineering excellence.
7/16	84	Interpretation and application of Engineering Standards.
8/01	85	Becoming a Member of The Order of Australia.
8/02	86	Recognition as Professional Engineer of the Year 2012.
8/04	86	Award of the Gold Medal of Institute of Public Works Engineers, Australia.
8/06	87	Learning lessons from people making mistakes.
8/09	88	Influence of some bosses.
8/12	90	Appreciation of Dr Ken Michael.
8/15	91	Influence of his Father.
8/16	91	Support of his wife.
8/18	92	Involvement with the Energy and Water Ombudsman Board.
8/20	93	Ongoing interest with the Infrastructure Sustainability Council.
8/21	93	Work with Laing O'Rourke as a Strategic Advisor, Transport.
8/23	93	Involvement with the Foundation of the Institution of Public Works Engineers.
8/25	94	Involvement with Gateway Reviews for the Department of Finance.
8/28	96	Aspiration to achieve potential at golf.
8/29	96	Personal advice to young people.
8/36	99	Pleasure of being a professional engineer.

INTERVIEW TRANSCRIPT

Track	Speaker	Topic
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1	DAA	My name is Doug Ayre the date is the 17 th of August 2018 and I am interviewing Mr Menno Henneveld at Engineers Australia on behalf of Engineering Heritage Australia WA Branch. Mr Henneveld, may I call you Menno?
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	MH	Please do.
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	DAA	Thank you. Right well I'd like to start with your family background and how you came to live in WA?
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	MH	I was born in Utrecht in Holland in 1946. I'm a pure 'baby boomer' in that I was born exactly nine months after VE Day in Europe. I was a second child to my sister who's five years older than me. I left Holland when I was five in 1951. I came out with my mother and my sister following my father who'd come out 12 earlier to establish himself before his family arrived from Holland.
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Dad was an accountant and had achieved accounting qualifications from university. He came to Australia and his qualifications weren't recognised. He worked as a labourer for nine months at the Midland Railway Workshops and studied part time to have his qualification recognised and then, when he got his first accounting job, he contacted Mum and said 'you can come out now'. We landed in WA on New Year's Day 1952. It was such an adventure for a young five-year old boy. I recollect seeing a steam train that I'd only ever seen in cowboy movies. I was expecting to see kangaroos and koala bears ...it was wonderfully exciting.

Dad had acquired a Government house in Bayswater, and for the next 12 months my sister and I attended the Bayswater Primary School. Dad got a job in Meckering as the Accountant for the Co-op and we moved to Meckering. That was a big shock for my mother, coming from a very cosmopolitan city in Holland and moving to a house with

a toilet in the backyard adjacent to the bush. That was a culture shock for my Mum but she adjusted.

We stayed in Meckering for two years and then moved to Geraldton which is where I essentially grew up. Dad got a job with Young Motors, the Holden dealership. I went to Geraldton Primary School and then on to High School in Geraldton. I enjoyed school and did well at school. I also enjoyed sport where I also did well. Geraldton was a great place for kids to grow up. Very safe and lots of sun, surf and sand.

DAA Plenty of fresh air?

MH Lots of fresh air and sporting mad so it was hockey, football, basketball, swimming and surfing...all those things. I then went to the University of WA. My Mum and Dad had done well settling into a new country but the only way I could attend university was if I got a scholarship or a cadetship. I was offered a number of cadetships and the two that stand out in my mind were with Main Roads WA and the Public Works Department of WA. I decided to accept the Public Works cadetship as it appeared to offer more variety in the field of Engineering, the course I wished to study.

The cadetship scheme meant I had to work for four years with the Government; otherwise you'd have to pay back what they had paid you during the cadetship. In spite of having reservations about working for the public service, at the end of four years of University I started enjoying my life in the Public Works Department and that really started me off in a very positive way on my career.

It was at this time that the single most important event in my life occurred.... I married my beautiful wife, Monika. That was just over 50 years ago as we celebrated our golden wedding anniversary last week. Love of my life, and we settled into married life with me as an engineer in the Public Works Department.

DAA Where did you meet Monika?

MH I met Monika, in my all but final year of university. It was at a function that the University architectural students used to run. One of the student's father had this beautiful big old house that was partially abandoned close to the beach in Coogee and they used to have what they called 'ghost-house parties.' I was an engineering student, Monika was doing nursing. It was a pretty wild party with a full-on rock band, and there [were] large log fires in the open fire places. Things got quite spirited and I learnt afterwards that the house burnt down.

DAA Must have been a good party?

MH It was just an amazing party but it has an interesting connection with my career later on and I'll foreshadow that now. When I was the General Manager of Engineering Services in the Water Corporation one of my responsibilities was to develop the Woodman Point Waste Water Treatment Plant. A massive waste-water treatment plant located close to the beach in Coogee, isolated in the corner of the Plant site with a ring fence around it was a heritage house dating back to the early settlement days of Fremantle which, I was told, had been burnt down in 1967!

So that night was the start of a beautiful life together.

DAA Good.

MH The first jobs I had with the PWD I found really interesting. I worked at the Engineering Research Station in Floreat Park which was owned by the Public Works Department and they did soils investigations and hydraulic investigations and I featured in both. I was there for four years. I was responsible for a number of hydraulic modelling studies. That work is all now done with computers but in those days the only way you could successfully model hydraulic structures was if you built a scale model, and conducted tests on the model.

DAA Yes.

MH The first investigation I was responsible for sought answers for ‘where do you put the overflow channel for the yet to be built Ord River Dam’? We built a 3D scale model out of concrete and determined the location of Stonewall Creek. This was important as there were a lot of downstream impacts and we had to be sure that it was located correctly. The designers had worked out the optimum location but this needed independent verification.

The second model study involved the flooding of the Gascoyne River. In 1961 there was a huge flood in Carnarvon. It flooded the town; wiped out many plantations and did all sorts of damage. This study was undertaken in 1969 so it wasn’t that long after the 1961 flood that the government decided to provide flood protection for the town and surrounding areas. So, we built a very large, distorted scale model of the Gascoyne River out of cement render over cement stabilised sand.

The first task was to verify the model after running through a flood hydrograph which replicated the 1961 flood event. This involved judicious placement of ‘roughness’ on the model, as well as a few engineering calculations to determine the shape the flood entering the model would be. Because you didn’t have mechanised ways of putting water through you had to come up with clever ways of doing this mechanically yourself. This was 1969 so the technology wasn’t available that there is now. The thing that sticks out in my mind was when you had verified the model, we brought people who were involved in that flood down to help us verify it. So, we had six or eight councillors and they were all walking around on the model. They were quite excited because when we put the flood through using a time clock that replicated the timing of the original flood they said ‘well at ten o’clock in the morning Joe’s place went under’ and, sure enough, it went under on the model. This was very satisfying as it showed, quite independently, that we had it right.

Then we had to model all the things that you could do to provide flood protection. This involved considering levies around the airport; river

barriers and levies in and around the town. We had eight or ten options for levies. We built a factor of safety into the options in case of larger floods in the future. We said 'right, now, that's what you have to build and we wrote a report to that effect and they subsequently built the levies the study recommended. And they've had bigger floods since then and the levies prevented the town and airport from going under. The work I did at the Engineering Research Station helped formulate, my thinking and approach to tackling problems in my future career. In particular how do you apply your engineering to those problems, as well as self-reliance in solving problems.

Another study, and perhaps the largest and most influential, was the Port Hedland harbour tidal flow investigation. Mount Goldsworthy, who funded the study at the time, had a lot of trouble berthing their 100,000-ton ore carriers. They wanted to reduce the currents that were occurring because of the tidal movement in such a way that they had more time to get in and therefore it was safer to both enter and exit the harbour. If you can imagine that the harbour basin had five or six tidal creeks running into it that caused these rapid tidal flows. We decided that the way to tackle this problem was to build a very large model, as it was also necessary to reproduce tides and you had to reproduce waves.

I had the responsibility of setting up the pipe circulating system to produce the tides on the model and designing and acquiring the wave machines.

The aim was to reproduce the tidal movement in the harbour and the tidal creeks utilised. Because this was a distorted scale model there were many trials conducted using a range of techniques to replicate the tidal movement. I vividly remember working with the huge tugs that guide the ore carriers to see where the problems were with the tidal movement occurred and what the tug operators had to do with these huge ore carriers when berthing. We then had to reproduce these movements on the model. That was a lot of fun because you had

to come up with continuous improvisation often with these crazy ideas in efforts to verify the model.

DAA I can see from the look on your face you really enjoyed this.

MH I did. It was like ‘boys’ toys.’ I had to set up my own photographic laboratory using very sophisticated photographic gear because you had to measure the tidal currents on the model. This was achieved using miniature floats hung down into the water and using time-exposure photography. Having verified the model and conducted 18 months of trials we came up with recommendations as to which tidal creeks should be closed and which options would offer the most beneficial return.

DAA Yes, I can imagine it would be a classic ‘what if’ situation?

MH Yes.

DAA If we try this what happens, what if we try that what happens?

MH That’s what the purpose of the entire project was and the PWD Engineering Research Station produced the report for Mt Goldsworthy.

DAA And I suppose hidden behind all this - talking about models in general - you have to have very accurate survey data so that you can reproduce it in the models?

MH Yes, well, and then once you’ve got that survey done how do you reproduce it on the model? Once again you had to improvise to come up with a means of building an extremely accurate model. So, I had four years at the Engineering Research Station. I did a lot of soils investigations as well [as] applied research that was going to have an impact on my career later in terms of soil mechanics with respect to dams and dam construction.

During my four years at the Engineering Research Station I completed a Post Grad Diploma in Administration - in those days they didn’t have MBAs. These were still slide-rule days.

DAA Yes, I can relate to it.

MH I did the Post Grad Diploma because I wanted to do more than engineering, I wanted to find out what made people tick when you were working with them. I just had an interest in working with people and the Post Grad Diploma provided whole bunch of things that I found really interesting and I completed the Post Grad Diploma part-time in four years. I did that at night.

At this stage we had a little nipper, Jason, our oldest son, followed shortly after by Marcus. This was a wonderful time in our lives and the work at the Research Station was challenging but I had always had a yearning to do construction work.

Going back to my childhood days in Holland my Mother told me I used to sit on my little trike running around with her walking along the canals and under bridges and I'd ask my Mum 'why doesn't the bridge fall down'? and she said 'you've got to be an engineer to understand that'. And that thought has always stuck with me, and I guess I always wanted to be in a situation where maybe one day I could build them.

So, I said to Monika 'I'd like to go in the country'. There was an opportunity to do construction work at a time when the Public Works was building dams, tanks, pipelines and a wide range of really interesting construction work. I said 'I'll probably get it out of my blood in two or three years but we'd have to move around the country'. And in the wonderful way she has always supported me she said 'okay'. Ten years later we came back to our home in Perth, but that's another story.

My first posting was in Mandurah. Not really a country posting, but it involved a typical construction set-up including a construction depot and camp and we lived in a 40 by 10 caravan style unit. Marcus was only six months when we moved down there and the conditions were pretty tough on Monika. I still feel guilty about it today.

But we did some interesting construction work in Mandurah, which proved a wonderful learning opportunity for me. It was a significant construction site, with many projects underway. There were some 250 people working there. I was responsible for a project installing deep sewerage in Mandurah. In those days it was a population of 6,000 people, it was like a retirement town, and they didn't have deep sewerage, it was all septic tanks. So that was part of a big program that the Public Works was undertaking to put deep sewerage into country towns.

DAA Be interesting in Mandurah I suppose because the water table's fairly high there isn't it?

MH Yes, very much of interest because we were also installing the first sewage pumping station right next to the estuary. This was five metres deep so you can imagine the de-watering that was required. Really interesting engineering stuff.

The other thing that happens when you pull the water table down is the impact on people who were getting their water from the ground water - suddenly there were people without water, and the trees start to die. There were all sorts of implications.

But coming back to the deep sewerage project I was responsible for, we had a big gang of 35/40 people who were working on one face and it was proving very expensive. I'd just done that four years of Organisational Psyche as part of my Post Grad Diploma and I thought there must be a better way. And what my thinking was 'why don't you set up four or five smaller gangs supported by their own private industry backhoes and to make it even more interesting have them compete'? Being naturally competitive, they would learn from each other, as well as receive support and direction from me as Project Engineer.

Another thing I did - and it nearly got me into serious trouble - was in those days the guys could work a Saturday and that was really good money because they got overtime rates. But it was PWD policy not to

work overtime unless it was an emergency. But I worked it out that if they reached a certain target it was actually economic to have them work longer because they were getting these high laying rates in arising from the competition. I consciously set it up this way so that they were really efficient little teams; they were competitive, and they were doing work at a greatly reduced cost.

Now, you can imagine in those days (1971) a \$3,500,000 project was a lot of money. and we were achieving laying rates approaching half the estimated cost. Anyhow, the PWD's Chief Engineer and Engineer Construction visited the site and wanted to know what was causing these extraordinary results and it came out that the workers were getting overtime which was a big 'no-no'. However, they could not ignore the results and for the rest of the project a temporary overtime policy was introduced and I believe my creativeness was remembered.

But I learnt a number of things from that little exercise and there were a lot of other projects going on. I was doing other projects at the same time but I learnt a lot about people on that project: what makes them tick and how you get the best out of people and I consider I have had good working relationships with most people I have worked with. It was also the first time that I'd been in charge of a large number of people. I was also fortunate to have had bosses who supported me in my attempts to improve the way projects were delivered.

I went from the Assistant Construction Engineer position in Mandurah to Resident Engineer in Wagin which was the same position my boss had had in Mandurah, but with a broader scope and responsible for many more men. The largest project involved building a steel water supply pipeline between Narrogin and Katanning which is 60 kilometres, and these were big pipelines. One of the features of this position was that it had responsibility for a large construction camp of some 250 people located in the middle of the Wagin townsite. Now, we had married people in the camp and there were many nationalities, and it was common to have fights and arguments. Remember I was

27 at the time, a young guy just out of uni, and I was given all of these responsibilities and to top it off I knew bugger all about building pipelines!

I recall one incident involving a very large, and very fiery [individual] who was a welder and he used to come to work with a big knife strapped to his leg. My Senior Supervisor, who was a very crusty and experienced old guy thought he would give me a little test. He said 'these guys are fighting each other on the job and I don't know what to do with this guy, so can you deal with it'. Here's me still wet behind the ears. Anyhow I took the guy aside and explained everything to him and that he must leave his knife at home and that there was to be no more fighting on the job. He said 'no problems, boss' and that was the end of the problem. But it was interesting that the Supervisor had asked me to sort out the problem. This wasn't just one problem, there were these types of people problems all the time and I guess I took to that stuff like a duck to water.

On the pipeline project they were using a quite archaic internal hire concrete batching plant. I did the economics and cost estimating and I privately hired a mobile concrete batching plant. I still don't understand why that had not been done before and it's just so fundamental. I mean now you'd think 'so what' but the bosses were saying to me 'you haven't done that before - have you got your facts right'? They were really worried that I was going to hire and pay a hell of a lot of money to mobilise this plant and then find it was going to cost more. Once again it worked like a charm saved so much money, we didn't have to use so many guys and the project was completed way ahead of the scheduled date.

DAA Mmm.

MH On the home front my accommodation had improved from a 40 by 10 in Mandurah to a brand-new double 30 by 10 in Wagin. We were living in luxury! And the house was on a block in town, away from the camp.

- DAA Sheer luxury?
- 2 DAA Right, okay, so you're living in this sheer luxury in the middle of town?
- MH We had two beautiful Irish Setters that travelled everywhere with us. But they became a bit of a problem when you moved so wherever we went we had these two Irish Setters; they mated we had pups and every town we went to subsequent to Wagin we left sometimes eight little Irish Setters in the neighbourhood.
- DAA So, you populated WA with Irish Setters?
- MH Yes. That's right. But they became a problem with the neighbours. I could tell you so many stories about the problems that we had with the Setters. They followed us everywhere they were part of the family.
- My next posting was as Resident Engineer, Kununurra. My youngest son Marcus had a real bronchitis problem when we were in Wagin. Wagin is unique in that it's not only not only in the bottom of a valley - it's something like at the bottom of a saucer because moist air seems to accumulate in the town' - and he suffered terribly from bronchitis. So, when I was asked 'would you like to go to Kununurra'? I said yes because of the warm climate. Additionally, the thought of working on the finishing part of the top dam - the dam that I mentioned earlier that I'd done investigation work for - was of interest and there were other projects that were going on. There was deep sewerage in Wyndham, waste water treatment plant in Wyndham, sewerage in Kununurra and a lot of follow up work on the dam itself.
- So, I went to Kununurra and a couple of the teams that I'd worked with in Mandurah and Wagin were also going to go to Kununurra That was like a big convoy. So, how do you prepare your wife and family for life in the remote far north?
- DAA A complete contrast isn't it?

MH A complete contrast. Our accommodation was now a Dravo house. Dravo was the company that built the top dam – an American company and when they move people into a town, they built houses that were suitable for the climate. All the houses in Kununurra and the north-west were built on stilts. None of them had air conditioning as they all relied on the natural free flow of air. This house was on the ground and it had a 12-horsepower air conditioner. Every time you turned it on it was like sitting in a Boeing 707 taking off but it kept the place cool and, that was a real feature of us moving to Kununurra.

The work in Kununurra was, once again, terrific. You're your own boss and I had responsibility for a lot of people. I mentioned earlier the convoy that went up which was an opportunity for us to take up groceries and bulk food and things that would last us for at least a year. We went shopping - in those days it was Charlie Carters - and we went in with about four shopping trolleys and we bought all this stuff to be taken up by the convoy. Logical thing to do and we settled down and we had all the stuff had all this wine and beer and, in those days, there was no TV in Kununurra. The only thing that you had to amuse you was if you set up a radio aerial and you could get the radio but the social life was something else.

DAA Would have been with all the beer and wine?

MH You have anticipated my story. I've never had so many friends in all my life and this 12 months of beer and wine lasted six weeks. It's the nature of living in the North-West. It a different climate; a different culture, everything's different, people are friendlier and we thoroughly enjoyed Kununurra. We probably saw more of the local countryside in the 12 months while we were up there than people who have lived there all their lives. We just went out every weekend.

Monika was a Registered Nurse and she worked part-time in the Wagin and Kununurra District Hospitals. Jason started school in Kununurra and the entire family, including the Irish Setters, enjoyed life in the East Kimberly.

DAA So, you were there 10 months, were you?

MH Ten months, yes. I always knew that and that's why we made the most of it. But once again the work was fantastic. You learned so much from people and about people on the job. The employees that came from Mandurah - I had a good relationship with them - and it was enjoyable working with them in the north-west and it was rewarding to see the young guys, that I had previously appointed as gangers, maturing and becoming foremen. The night before we were to leave and return South there was an enormous thunderstorm and were having a farewell in the hotel which was supposed to close at ten o'clock in those days but I knew the owner and we were there until one or two o'clock in the morning a whole bunch of us. But the lightning and the thunder it was just amazing. We standing at the window watching all the lightning because it's pink. You get pink lightning up there. The day after that was when Cyclone Tracy hit Darwin.

DAA Really?

MH I think it was all part of the same storm but we went back to Perth just before Christmas - I think it was the day before Christmas - and we just were amazed at what happened in Darwin.

DAA Because it was Christmas Day in Darwin wasn't it?

MH It was too, yes.

DAA Yes.

MH So, we came back and lived in the house that we had bought just before we went to the country and rented it out all the time we were in the country. And all the people that were coming from Darwin via Kununurra - I remember the news stories of people driving from the North West and staying in emergency accommodation in Geraldton and in Bunbury where they organised they organised places for them to stay. Yes, that period stands out in my mind. An interesting story was when we left Wagin it was minus two degrees. There was ice on

the windscreen you had to get a bucket of warm water and throw it on to get the ice off.

We drove to Perth, got on the plane in Perth, and when we got to Kununurra on the same day we were met by the local engineer and he said we couldn't get into the house so we stayed in the hotel overnight. Then he said 'would you like to come down to meet some of the guys at the tennis', It was six or seven o'clock at night and we went there and it was just the most beautiful weather it was like 25 degrees and the people sitting huddled up under blankets and saying 'geez it's cold, it's so cold'. We had just come from minus two degrees!

DAA Where it was really cold?

MH After Kununurra we moved to Bunbury and I was Assistant District Engineer in Bunbury responsible for construction. Once again, we were putting deep sewerage in Bunbury where there was also a ground-water problem. Really deep, very expensive sewerage. Excavation was by three-stage lift conducted within timber shoring. In other words, there'd be a guy at the bottom shovel it on to the step, shovel it on to another step, and shovel it on to another step. I completely changed the approach that was taken. All obvious things now but in those days the construction techniques had just evolved and no one had sat back and said 'can that be done better'?

DAA Just digressing a little on that I suppose today also the perception of occupational health and safety has changed hasn't it?

MH Totally changed. I had one incident there that changed my views forever on occupational health and safety. I'd been on the site and I'd seen the bracing that they were using on the timber shoring. Now the soil is waterlogged clay so the bracing had to be spot-on and I said to the foreman 'there's a set of bracing that's missing. I'm sure that there should be more there' and he said 'no, no, no. I checked it all. It's all okay. It's according to the drawings' and I said 'well, let's go and have a look at those drawings during smoko'. It [was] 10:30, and the

guys all came out of the trench and we were having a break and, all of a sudden, we heard this very loud ‘whoof’ and what had happened the bracing had gone like that.

DAA Yes.

MH It’d had just gone like that.¹

DAA Compressed?

MH Absolutely. They all would have been killed if they’d been in that trench and I looked at it and the hair stood up on the back of my neck. I could still remember that day.

DAA You never forget, do you?

MH I’ll never forget that. They were virtually 20 minutes away from death.

DAA Yes.

MH And, even before that I had a strong sense of safety for the guys.

DAA What did the Supervisor say to you then?

MH He looked at me [and] he went white.

DAA I bet he did.

MH He went white. He just looked at me and he said ‘I don’t know how that happened, I don’t know how that happened. I don’t know how that happened’. He was flummoxed. We had equipment in there [and] it took us two or three weeks to get the equipment out, and it was just a disaster. So, the strong sense of safety I had was reinforced, and it stayed with me all my career.

I looked after all construction in the Bunbury region so I was doing irrigation work in Harvey, construction work of all sorts in Bunbury and once again the work was always, always really interesting. I’ve never had a dull day at work. Sorry, just coming back to ‘the dull day at work’ and you’ll remember the recollection that I had where I said

¹ Sudden snapping sound made.

‘well, once I’ve finished my four years I can go out and get a real job’? At the end of four years with all that engineering experience; the really enjoyable work; it was a good organisation to work for, and my bosses had been good. You know I didn’t want to leave.

DAA No. You had a ‘real job’ didn’t you?

MH Yes, that’s right. It’s funny how you don’t realise that when you graduate.

DAA In fact, just digressing a little again. Those cadetships - and I did a similar thing in UK - they were brilliant weren’t they?

MH Oh, absolutely. I mean in those days the university education in WA was free. It was provided at no cost but you had to pay for your books and accommodation and the Cadetship scheme supported this. The Cadetship also provided work during the university holidays and I had some really interesting experiences during these holidays. I’ve skipped over that because you’re going to be running out of time.

DAA No. [There is] plenty of time. As much as you need.

MH It was really sad when I became a senior executive in the Public Works when some of the bean counters queried whether these Cadetships were worthwhile’? So, they did an investigation and found out how many people got to a certain level within the organisation who had had a Cadetship and those that had got there because they had been recruited externally. They came to the conclusion ‘why should we have Cadetships when we can buy them off the street’?

DAA Well you know, and I know, as professional engineers that most of the civil and mechanical engineers in WA - even in the consulting field - started off like that didn’t they?

MH Mmm. If you look at the road industry - and I’ll come to that in a while - the road industry in Western Australia, and you go to all the contracting organisations, you go to local government, and ask them where they started.

DAA Yes, PWD, Main Roads, Water Department.

MH Yes, and a lot of those were with Cadetships. It did something more for you though. It built like an early commitment - an early loyalty. If you've had someone who put you through uni and gives you four years work guaranteed you know you have a commitment.

DAA You do.

MH Unless you're someone who doesn't give a toss about those sorts of things. So, you have a commitment and I think that's something you can't pay for.

DAA There's a sense of loyalty isn't there?

MH Yes. And the work was always enjoyable.

DAA Well that's the key isn't it because so many people can't say that. But I can honestly say it as well.

I did enjoy working and I think that's the difference often between a professional person and somebody who just goes and works for the wages.

MH Mmm. Yes. Sorry to interrupt Doug but my view is that everyone whether they're working as a labourer or the tea lady or whatever they all enjoy their work if they can get a sense of achievement.

DAA Absolutely.

MH Doesn't matter what it is. If they're digging a hole and they get a sense of achievement out of doing that before smoko that's one of the things that makes people happy.

DAA Yes. Yes, I remember as an apprentice being taught how to dig a hole by a fellow who knew what he was talking about - and it made a difference.

MH I think that's so important when you're working with people to determine how can they can get a sense of achievement out of what

they're doing and still do what you want them to do in the way you want them to do it. That's the trick of leadership isn't it?

DAA Mmm. Alright so just coming back. I diverted you a little there but that was interesting. We're still in Bunbury and you're still working down there?

MH Yes, so it's 1975 now – 1975, so I'm 29 – yes, that's about right. So, I've done a fair bit of stuff already and the position of District Engineer in Merredin came up. Now, keeping in mind I was Assistant District Engineer in Bunbury which was a much bigger Region than Merredin.

DAA Yes. Still with PWD?

MH Still with the PWD. It's a long time before I leave the PWD.

I went to Merredin as District Engineer so now I've got operational responsibility as well as programming and capital works and building things. It is a big region - goes north to Payne's Find and south to Corrigin. It covers all the Central Wheat Belt. The boundary on one side was the Kalgoorlie District and on the other side was the Northam District. The goldfields pipeline ran through the middle of it so you had responsibility for that. And that was interesting when we moved to Merredin that the pipeline is so much in the psyche of people who live along it that if you're the person who's responsible for looking after it you get a bit of kudos for that and being in an area where water is so important. Being a District Engineer in an area where water is critical gives you a certain prestige and I must admit that sort of respect that you got from such a position meant a lot to me.

DAA I can imagine. My friend Richard Hartley wrote the book 'Ribbons of Steel' I think he called it. That was about the pipeline and he picked up on that, you know the pride that people took.

MH Well you get so involved with it. I mean I got into the history of that pipeline and I think I might have even read that book. The engineer

who was now my boss - a gentleman by the name of John Stanley was the District Engineer in Merredin in 1952. I remember one incident where the problem with the pipeline was that when it was built in 1902 or 1903 all the pipes came out from the UK. It was called a 'locking bar pipe' and the uncoated steel pipeline was put underground without any thought of corrosion protection inside or out.

By 1916 / 1920 there were leaks starting to appear and they realised 'we've got to do something here'. So, between 1920 and the period when there was no steel available leading up to the Depression, they had to somehow fix those pipes without steel and they used wooden stave pipes. The same principle as used on a wine barrel, but with a wire coil around the length of the pipe. I remember finding these pipes and resurrecting them. You will probably find one in the foyer of the Water Corporation building now which is the one that I resurrected.

DAA Yes, like they used to make gun barrels?

MH Yes, that's right, but with the old steam pumping stations the steam pumps would pulse and you could look at these pipelines and you'd see them breathing. They wouldn't leak but they'd breathe. That was an interesting bit of history.

When John Stanley was District Engineer there his job was the finishing of the relining of the steel locking bar pipes that had since been placed on concrete blocks above ground. The process had been to pull them out of the ground, weld them, cement line them, and then put them on concrete blocks and that's what you see today. A lot of the pipeline had been underground before. The role that John Stanley had was to supervise this cement lining so when I came, he said to me one day 'Menno, I'd be really interested to find out how that cement lining's going' which is a reasonable question. And I said 'oh yes John, how do you expect me to do that'? Well there's an obvious answer. He said 'there's a manhole every 50 kilometres. You go through the bloody manhole and inside the pipe.'

DAA And I'll see you down [at the end]?

MH I'm reasonably broad but these are the 750-millimetre pipes. I don't suffer from claustrophobia but I had these visions that I went in there on a little trolley on my back with my torch and some pump attendant at a pump station 100km away throwing the switch and me coming out of the pipe in Kalgoorlie!

DAA At least you would come out the end?

MH You see, when you cement-line the pipe you can cement everything except the last bit which is welded from the outside. So, they left these gaps and those gaps were the ones that had to be lined internally and that was what John Stanley wanted me to check - how are those bands standing up on the inside?

DAA Yes. And, how were they?

MH Well some of them were falling off. In the days when I came there, there were still so many leaks on that pipeline all caused by the bands leaking.

DAA Was it made of lead?

MH No, it was steel with a mechanical seal.

DAA Right okay.

MH So, locking bar pipes.

DAA Locking bar?

MH There were many leaks reported, and if you have a leak what do you do? You had to keep the pipeline going so you couldn't turn it off and fix the leak. So, the maintenance guys developed this way of using wooden wedges and they'd belt it into the little crack and, of course, if there's a bit of rust there?

DAA It gets worse?

MH Yes, it gets worse and after fixing a particularly bad leak it would look like a porcupine with all those wedges sticking out of the pipeline.

Eventually a leak would become so bad that they'd have to turn the line off, and then they'd replace the pipe.

That was maintenance on the main line, but there were all the small-town country water supplies supplied by a vast network of supply mains fed by the Goldfields Pipeline that you had responsibility for. Additionally, there were the independent town water supplies which also carried quite a responsibility. We were also installing deep sewerage in these towns as part of a state-wide program. Once again this was a large operation with 300 guys spread all around this quite large Region. Large mechanical and maintenance workshops as well as a number of depots and offices making this an interesting job with higher responsibilities.

DAA So, you had water supply, you had sewerage disposal. What about waste-water generally?

MH Oh, that's all part of it.

DAA That was all part of it?

MH Yes. Most of the larger towns had operating sewerage schemes, but the medium to smaller towns were undergoing new sewerage schemes installed by the construction crews in the Region. So, our time in Merredin was a wonderful experience. I was there for four years from 1975 to 1979. Marcus started school in Merredin, and Monika worked at the Merredin District Hospital. We became very involved in the social and sporting life in Merredin.

My next opportunity was a promotion from Area Engineer in Merredin to District Engineer in Collie.

DAA Collie. Right you've certainly been around, haven't you?

MH Yes. We had four years in Collie.

MH For a number of reasons [they had] old dilapidated offices. (It was the old court house (1860) that had been modified. People's morale wasn't high, and it was badly understaffed. We got money to build a new office, we were able to build up the number of engineers to help

out. The Supervisors and the staff were good, but they just didn't seem to get excited about things.

We built a new modern office and had an opening attended by politicians and local dignitaries. It's amazing what that does to the perception that people in the community have of the local PWD office and the people who work there.

I'd been there three months when the salinity program came in. Now, the background to that was that the Wellington Dam, which was also under my control, was becoming more and more saline. And the reason it was becoming saline was because farmers were clearing their land to develop their farms. The mechanism that causes that is that when the trees are there, they're sucking up the water and over the many thousands and thousands of years there's a salt profile built just above where the water-table finishes. But if the trees go then they're not sucking up the water so the water-table rises into the saline ground and that water runs into the creeks and the rivers and finishes up in the dam.

So, we had Wellington Dam, which was a perfectly good water supply dam until the early '70s and what was happening was the salinity of the dam was reaching 1,000 parts per 1,000,000 of total soluble salts where it couldn't even be used for irrigation. A subsequent job I had was to actually build a new dam - the Harris River Dam but that didn't happen when I was in Collie.

The problem we had with the salinity was 'we've got to stop this clearing'. So, without any announcement, without any warning, the government said 'there's now clearing controls on all the catchments in the South-West. Farmers cannot clear unless they have a permit'. And you can imagine what that does to farmers? I mean they've got plans to develop their farms and this created a hell of a furore. Some of the farmers who had got wind of this had had bulldozers working on their properties 24 hours a day, seven days a week, clearing as much as they could before the legislation came in.

- DAA Let's just stop there.
- 3 DAA So, the farmers were out there clearing day and night then?
- MH I wasn't aware that this was happening and I came in and it was like being thrown into a hornets' nest because I was in charge of issuing the permits and carrying out the clearing controls.
- DAA You were popular, weren't you?
- MH Oh, you can imagine. There were rallies and protests. The Director of Engineering, Bob Hillman at the time, and some other senior engineers, Steve Shelton was still there, came down. with the Minister, who was also the local Member. We were to conduct a tour of all four of the key areas and speak to the farmers at their local town halls and explain to them what's happening and what they can do and what we can do to help them and so on.
- I remember that these were always at night and I remember being outside with Hillman and myself and one other guy and 300 or 400 angry farmers and the light was shining on them and I can still see and feel the anger in that crowd.
- DAA You were going to get tarred and feathered?
- MH I took on the role of being a land advisor, a legal guy, a salinity expert and all the things that were associated with this. I would have to speak to the farmers and explain the options available to them., One of the things was we could [do] was buy the land and, of course, that starts a whole string of negotiations as to what you're going to pay etc. But another thing we could do was we could buy just the bits of land that had forest on them. Some of the properties we bought, we bought the whole property, and then planted trees on the bits that had been cleared. These negotiations were so intense as you were dealing [with] peoples' lives and their futures. So, you couldn't go onto a farmer's property and him not be angry.
- DAA I suppose just standing back now, as a new chum as I would have been at the time, the concept of progress was all about clearing land

and farming and development and this sort of thing and you would have been standing up against it, really, wouldn't you?

MH Well it's a farmer's livelihood.

DAA Yes.

MH They live on the land because they want to be on the land and suddenly, you're telling them 'well, you're either going to have to stop farming or sell your farm' and yes, it was very, very difficult. And once again I was only 30 still very inexperienced. I remember the Italian Supervisor who'd been there for years and years and telling me when I first arrived 'you are so young'.

DAA Well I could [say], to be a bit pithy I suppose. Collie was quite cold but the water was getting hotter wasn't it?

MH Once again, lovely people, and I was lucky I looked younger than I was so I probably looked like a teenager to him. But here I was and I was talking to these old farmers, and telling them what they had to do - on their farm. You don't do that to farmers.

DAA No.

MH That was tough but that was part of the job.

Once again, I had operations. I had a lot of much larger towns now that I had to look after water supply and sewerage. We were putting sewerage into some of those towns still. The Region went right down to Margaret River and Northcliffe so I had that whole crescent that sat around Bunbury. It went east to Darkan and north right through to Williams so it was a really big area and a lot of complicated public works type issues.

DAA And quite a varied environment too?

MH Yes. Once again, a hell of an interesting job. I mean what could be more interesting than that?

Our housing had been upgraded now. We were in a brand new - I think it was 140 square-metre house which had just been built. We

were the first people in it in a nice sort of a new sub-division so you felt more a part of the community.

Incidentally all the time I moved my wife, who I've mentioned, Monika, was a Registered Nurse and every time we moved, she did different nursing work, which gave her a broad background in general nursing. In Kununurra she would sometimes have to drive by herself at night to Wyndham, 60 km away and I don't know if you've been in the north but

DAA I have yes.

MH Well you know the cane grass that's exists next to the highway. That's a couple of metres high and out of nowhere cattle would pop out of it?

DAA Yes. Absolutely. Camels and cattle.

MH So, she used to be quite frightened at times and, when I think back, she was very courageous doing that sort of stuff.

DAA She would have been a valuable resource in an area like that though?

MH Oh yes. It was never a problem finding work and it was always welcomed and appreciated. Yes, she did that in Merredin as well. Bunbury yes, everywhere we went she used her nursing qualification and she's got a lovely way about her in terms of the way she works with people. She cares for people so that came out as well.

DAA She probably delivered a lot of babies in her time, did she?

MH She was there when doctors were delivering them.

DAA Yes, okay.

MH She dealt with a lot of real emergencies when there were no doctors around. You'd have some drunken louts coming in. There'd be a fatality or a near fatality on the road, and she would deal with those sorts of emergencies.

DAA Well you did well both of you I think.

- MH Yes, I think so. The kids of course they were going through school. Jason the oldest went to his first kindergarten in Mandurah. Marcus did his first one in Merredin and they went through school in the country. My ambition was always that I really wanted to be back in Perth when the kids started High School. We achieved that which I'm thankful for.
- DAA Yes. Well only rightly so because you'd done your share hadn't you in the country?
- MH Yes. I'd moved around and that did help my career. I mean getting that responsibility at an early age came because I was moving. I was willing to move.
- DAA Just on another angle, you talked about building a new office down in Collie I think it was?
- MH Yes.
- DAA Did you get involved in the preservation of heritage? Was it the 'done thing' in those days?
- MH There wasn't much in Collie. There was a lot in Merredin, you know. I talked about the pipeline and the interest I had in that.
- DAA Right.
- MH The old pathway for the gold diggers when they went from Perth to Kalgoorlie didn't go along where the highway is now and, of course, there wasn't a pipeline there before the gold rush started. There were a number of homesteads. where they stayed and some of these went back well before 1900. Some like Mangowine are still there today. And there's some wonderful heritage around the catchments and the dams - the water supply catchments that used to provide water to those homesteads.
- DAA A lot of them came off the bare rocks and that sort of thing, didn't they?

MH That's what I was going to say. They would go to these rocks and if there was a little hollow, they'd fill it out and you can go there now and see where these rocks were almost like smooth marbles providing run-off with the lightest of rain and collect your run-off in covered drains. - and this was before the pipeline.

DAA I suppose Wave Rock at Hyden is a classic example isn't it?

MH [It is yes,] but there were so many of these rocks. I can't remember the names of all of them but those catchments and the water that ran off also provided the water for the steam trains. If you had poor water you couldn't put it in a steam train. So, this water was almost like distilled water - it was pure rainwater - and that became a link as well. So, there's those interesting sort of heritage linkages.

DAA Yes. Indeed, I mean not only did the old diggers navigate from water supply to water supply but, as you say, the railway line went the same way to access the water for the locomotives?

MH Yes.

DAA Hence the large water tank at Merredin up on the poles?

MH Yes. That was to get the head.

DAA Mmm, okay.

MH So where am I - I'm still in Collie?

DAA You're still getting tarred and feathered in Collie.

MH Yes. I'm just trying to think of some of my recollections of Collie. I mean that one stands out about the clearing controls. You know, each of the little town water supplies had their own issues and you had to discuss these issues with the right people. The thing I learnt was how do you make a District like that tick and it's always about communicating, it's always about talking. I had a regular run where I'd talk to the local government people and I'd do that regularly because Public Works and local government were very close and I had

good relationships with all of them. That happened everywhere I went.

DAA It's crucial isn't it?

MH It is, yes.

DAA Yes, I used to do the same when I was a Regional Manager with the SEC and used to say that 'public relationships is like money in the bank - you bank it, and bank it, and bank it, until one day you need to draw on the account'.

MH Yes, that's right.

DAA If you draw on the account when you've got nothing in it you've got problems.

Well similarly I suspect you'd have a good relationship with the local politicians as well?

MH Oh, you were in their office all the time, yes.

DAA Yes.

MH What I wanted was, if they had a problem, they'd call me and if you could do that and contain any issues that had arisen, then that was the end of it.

DAA You're not telling me you didn't need a 'ministerial'?

MH No, I certainly didn't need them.

DAA No.

MH But inevitably they still came through but you would then talk about it. But no, I'd spend a lot of time in the Local Member's office.

DAA You can do a lot can't you?

MH Mmm, yes.

DAA Yes. Okay.

So, just moving on a little bit with Collie, was the problem with salinity resolved?

MH No, not really. The catchment was always going to yield salt water. Some of the things that we did, whilst the impact of the clearing controls was still being considered, was I had a good relationship with a Professor Jorge Imberger who ran the Water Centre at the UWA at that time. You might have heard of him?

DAA Indeed. Yes.

MH What he was doing was understanding what happens to the colder saline water as it moved down the Collie River. The trick was that at the beginning of winter when the water first came down and was at its coldest it actually sank down to the old river bed so that there was a slug of salt water that was moving down the river bed. As summer came on, this would tend to mix but if you got it when it was at its coldest you could actually do something. So, we started drawing the water off at the lowest point at the dam face and we were sucking that slug down and that actually helped reduce the salinity in the dam.

So, whether the clearing controls had an impact – or whether withdrawing the highly saline water was having an impact, or whether there were other things happening, inevitably in the end the dam couldn't be used for water supplies because it was just too saline.

I mentioned the Harris River Dam which is a dam in one of the forest catchments and which became the main supply for the Great Southern Towns' Water Supply Scheme and that was a project I was responsible for in building that dam.

DAA You dread to think what would have happened if you'd done nothing?

MH Well, that's right, yes. The Great Southern Town Water Supply Scheme couldn't have provided water, to all the towns east of Collie and south.

DAA Just so that I can understand it, does fresh water float on the top of salt water?

MH Well, saline water is more dense.

DAA So, it sinks to the bottom of the dam and you can then siphon that off?

MH Yes, but the coldness also helps.

DAA Yes, so warm water rises and fresh water rises so you can get the cold salty water off the bottom?

MH Yes. The thing that we also did is, once we acquired land, we planted trees on it and we were planting 2,000 hectares of trees a year.

DAA It's a lot of trees?

MH It's a lot of trees. Costing a lot of money. They've all grown and we went to a lot of trouble to make sure we picked the right trees and put the right trees in the right locations and there was quite a science to it.

DAA What were the right trees then?

MH Well the marginatas were the ones that were closest to the creek bed.

DAA That's *Eucalyptus Marginata*?

MH Yes. I can't remember the names of all the others but the ones that sent their roots down deep were planted on the intake areas and the ones that could sit in the salt water easier, or closer, or have wet roots like the ones I just mentioned. There was quite a science behind selecting the correct trees.

DAA Mmm so you'd have been working very closely I suspect with environmental landscape people, wouldn't you?

MH Oh yes, it was Forest Department in those days. There's a lot of science went into it.

DAA Yes, I can believe it. Fascinating actually.

MH Yes, it was. But that was something that sort of like sat to the side and then I also had to look after the District. I was District Engineer.

DAA Mmm, so, that was your time in Collie was it?

MH Yes.

DAA And you clearly didn't get tarred and feathered?

MH [With] some of the farmers we actually did some clever deals. We acquired part of their land and enabled them to keep farming whilst we were also re-foresting. We'd buy several properties and there'd be one farmer left and we'd say 'look, what if you get this bit of land and this little bit of land and then we plant trees on all the rest of it, is that a viable farm for you' - because we owned the farms - we bought them. So, it was a lot of negotiation. You can imagine the kind of discussions you'd be having. They were always around the kitchen table with the wife there. It's a very, very personal [thing].

DAA Yes. A bit of horse trading but it works?

MH Yes.

DAA Yes. I can relate to that yes, but there's no magic formula is there?

MH No.

DAA No.

MH Everyone's different and you have to find out where are they coming from. I could never figure out their mindset. Here they were with a \$10,000,000 property and if we paid them the \$10,000,000, which we were obliged to do, they could put it in the bank and the interest they make would be more than they would get earning on the farm.

DAA Absolutely.

MH So that was the cold hard commercial look at it but they were on the farm because that was their life and that's where they wanted to be.

DAA It was a lifestyle decision wasn't it?

MH Yes. So, you know it sticks in my mind that part of it.

DAA Alright, so you survived Collie then?

MH I survived Collie.

DAA What happened next?

MH My next promotion was to Regional Engineer for the South West which looked after the Bunbury, Albany and Collie Districts. It was a

big Region. I did that for about a year. The chief of the Operations South Branch, Vince Taylor, said to me 'we want you to move out of being a Regional Engineer to being Acting Executive Engineer'. I had a long discussion with him and said 'no way am I going to be an Executive Engineer, I want to build on the experience I've gained and share that experience with the District Engineers. I just liked the environment I was working in. Executive Engineer meant you became a paper pusher to my way of thinking.

DAA At the time?

MH At the time.

DAA Yes.

MH All of these were at the time.

DAA Yes, indeed.

MH There were a couple of steps in between but I became Executive Engineer. Now that was in 1980. So, I am still relatively young This was quite a high-level position for my age at 34.

DAA Yes.

MH Executive Engineer. Now, what that involved was going to planning meetings and making sure any works proposals that were discussed related to the capital works program. It meant I was responsible for working out the funding requirements for the capital works program and related executive matters. The first thing that struck me about being in that position was we never asked ourselves 'where is the Public Works going, what are the objectives of the Public Works Department'?

I don't know why I came to be in a position where I was asking those questions but they were pretty fundamental and the Public Works did not have a strategic plan. It had four capital investment plans like irrigation and drainage, water supply, sewerage and harbours and rivers - and that was its planning - and that related to the capital works. So, this wasn't me by myself there was a group of us who

were starting to ask those sorts of questions and we said ‘well, maybe we do need a strategic plan. Firstly, what the hell is a strategic plan, and what’s important about it, and why would we even do it’? And we said ‘well what are the objectives and what are we doing to achieve those objectives’? Pretty fundamental stuff.

And this is 1981 and we didn’t even have desk top computers then, let alone introducing the concept of a strategic plan.

Could I just go back a story - because it’s interesting?

DAA Yes of course you can.

MH When I was in Wagin in 1972 - that was the first time I stopped using my slide rule because they made calculators available.

DAA Was it a Hewlett Packard with a little memory stick?

MH Yes, a HP45.

DAA Been there, done that.

MH But the reason I mention the story is to show you where the Public Works were in those days. I was at the forefront. I was getting an HP45 but to get it I had to go to the Mechanical Appliances Committee to get permission to have a Hewlett Packard HP45 - a calculator.

DAA Yes.

MH I recall that whilst in Mandurah my costing clerk was doing \$4,000,000 project account reconciliations and balances using a mechanical calculator.

DAA And he was using a hand-cranked machine?

MH Yes.

DAA And ‘numerical methods’ had a different meaning, didn’t they?

MH They did. But I just thought I’d recount that because it showed the major leaps in technology that were just starting.

DAA Mmm, well, that was ‘the ants-pants’ in its day wasn’t it?

MH Yes. That was in 1972. So, now, here, fast forward to 1981, as Executive Engineer I was eagerly awaiting our first desk-top computers. Because they hadn't come yet, as we were still reliant on a computer that was in the basement that was the size of this room and people using Fortran 4 cards to run them.

DAA Yes. Punch cards?

MH Yes.

DAA Yes. Look at me laughing. I've been there.

MH I'm glad you can share the memory because you tend to forget those things.

DAA You do.

MH And how far we've really come.

DAA You do, yes you do.

MH You know we've got the equivalent of that huge computer the size of a room in our hands in our iPhone?

DAA Yes, and I suppose you used to book time on the computer, did you?

MH Oh, you had to. Yes. And you had to do it at six or seven o'clock at night sometimes to get access.

DAA Absolutely. That early? Oh right, two o'clock in the morning was often my mission.

MH So, you know that sort of puts a time perspective in it.

DAA Yes.

MH So, I was Executive Engineer. We were talking about strategic planning, we were awaiting our first desk-top computers, and we struck up this path of 'let's set some direction for this organisation'. I remember the first strategic plan we came out with was a two-pager. We weren't too clear on the objectives, –and there were many lengthy discussions at these planning committees that I told you about. I was the 'go-to person' for the Corporate Executive and all the Directors

and I needed to gather their collective thoughts to put together a strategic plan.

DAA You were the 'gopher'?

MH I just learnt so much, particularly at the strategic level when compared to those working in the Regions and the Districts who were dealing with their day-to-day problems. As Executive Engineer I was dealing with longer term planning problems.

DAA And that's quite scary in a way isn't it?

MH At first.

DAA Because you think 'oh crikey' you know. "What am I going to do"? And there you are you're faced with the future, aren't you?

MH Yes, but it was interesting because no one else had done it before in the PWD, so, no matter what you did it was going to be an improvement and you could talk with others and find out 'how the hell do you do this'? You couldn't Google in those days.

DAA No, no, no.

MH So, that put us in good stead because a big event that happened in my career was when the Public Works merged with the Metropolitan Water Authority, and became the Water Authority, and that was in 1982/83.

DAA Right, let's just stop there.

4 DAA My name is Doug Ayre the date is the 5th of September 2018 and I'm continuing with the interview of Menno Henneveld on behalf of Engineering Heritage WA. Menno, I think the last time we met we finished at a point where the Water Authority was about to be formed and obviously you had an involvement there. So, would you like to pick up with that?

MH Okay. The timing for that was I'd been Executive Engineer for the Public Works Department at the time of the Burke Government coming into power. Burke was keen to rationalise the water industry

for a number of reasons. I think it was something to do with his union background, but the decision was made to merge the Metropolitan Water Authority - it might have been the Metropolitan Water Supply Sewerage and Drainage Board - with the then Public Works Department.

That was an enormous undertaking to merge these two large agencies. The Public Works consisted of things other than water. It looked after harbours and rivers; water resources; it had a very large architectural division, and it dealt with things such as irrigation and drainage as well as sewerage and water supply. So, I was part of the team that helped set that up. The very senior people from the Met and from the Public Works worked as a team to set up this new major agency.

It was 1982 and the aim was to have this set up by the end of 1983 so we set about working out what would the structure be and what would the objectives be for this new organisation. It's interesting that it linked with the work we had started on a strategic plan for the Public Works Department. This was a very, very large merger. To give you some idea of the extent of the merger there were 6,000 people working for the Public Works Department at the time and some 4,000 working for the Met so to put those two organisations together was an enormous task.

Interestingly at the same time this was happening, I was conducting an organisation-wide personal awareness training for everyone. It was a program introduced by an American gentleman whose name was Lou Tice. and it was a very structured approach to making people aware of what they were capable of. It was really a confidence-building thing for people. That's a very broad explanation of what the course was about but I conducted that course and I had an organisational psychologist run that course with me using the Lou Tice videos as a guide.

That program produced some really interesting outcomes and one of the main reasons we introduced the program was to have people less

concerned about what this merger meant to them. People were very fearful. This was a huge, huge change and people are fearful of change so part of this program I ran was to have people less fearful - to have them have some confidence in themselves.

DAA And move away from the threats and more to the opportunities?

MH That's exactly right. So that was quite a sophisticated course but it sticks in my mind because people came up to me afterwards and said 'I'd never thought of my working life in the way it was framed in that course'. It was very pleasing to myself to have people actually pick up on the confidence and actually start looking forward to this change. Well, that's my read of it. That mightn't have been the reality but that was my read and the same thing was happening with my counterpart in the Met.

At the most senior level, I mean we're talking Directors of Engineering and so on, we ran those courses with the same people. And they are so personal and they are so well personally oriented that I recommended that they actually attend these courses on the weekend with their wives and that was pretty dramatic. You can imagine an organisation like the Public Works Department which is very hierarchical, almost like the Army, coming in with this 'touchy-feely' stuff. It was quite interesting to see. And it had a great impact.

Sorry, I'm digressing, but it was something that happened at the same time as the merger was happening.

And the merger finished up happening in 1983 and we moved into our new headquarters as the Water Authority of Western Australia. That was the forerunner for the Water Corporation which subsequently came in 1991. We finished up [with] a total of 6000 in the new Water Authority.

DAA Thereby hangs the tale?

MH Yes, yes that's right.

DAA Yes.

- MH What happened to the others?
- DAA What happened?
- MH We didn't just lose 3,000 jobs because a lot of those people went to other organisations. Like the Architectural Division became the Building Management Authority so a lot of people went to that. It was interesting that the Met people didn't think it was a merger, they thought it was a take-over because we had the bigger numbers in the Public Works.
- DAA You do, in my experience, get quite a bit of 'parochialism' is not the right word but 'personal fiefs'. You get a rural regional people and metro people, don't they? Bringing them together is hard work?
- MH Oh yes, and you can imagine those little fiefdoms existing in the Met and those little fiefdoms existing in the Public Works and then bringing them together.
- DAA Oh absolutely.
- MH It was very, very interesting. I learnt a lot about people during the merger. Not only because of the training course that I ran, but because it's self-awareness training - you also pick up a lot of self-awareness yourself.
- DAA Well one of the things I certainly found is if I ever have to run a course, I learnt more about it than anybody else.
- MH So, after the merger in 1983 the talk started about my role. At that stage I carried on in my Executive Engineer role where I was supporting the Directors of Engineering in the new Water Authority. I was a support for the Executive and that's a wonderful position to be in because you see everything that's going on in the organisation.
- I had a few influential roles because of this role. You may recall my role as secretary for the planning meetings that used to happen in the Public Works? Well, with the merger of the two organisations came the merger of the two capital works programs. It became my responsibility to manage the combined program. That was very, very

interesting and I was once again on a very steep learning curve. I remained in that position until they started to merge the key people at a higher level and find appropriate senior positions for people.

I became Manager of Construction Branch which subsequently became Major Projects Branch. It was responsible for all construction work carried out by Water Authority personnel, or the day-labour workforce. I went into an area which was strongly metropolitan oriented but I got the job because of my construction experience in the Public Works. The people in the Met didn't appreciate my construction experience in the Public Works so it was a very foreign environment for me in terms of the people I worked with and the type of work that was being done. But the principles of running a construction outfit were the same. There were 450 construction workers in the Branch and we were doing very large projects. There wasn't all that much contract work happening, it was all being conducted by day labour.

DAA So, it was all wages?

MH Yes, that's right, a very large wages work force, but I think I succeeded in that area and it became a very efficient and highly regarded Branch. There were some very good people there and we successfully delivered some really fantastic projects.

When Construction Branch became Major Projects Branch the emphasis changed from a construction services Branch to a project delivery Branch and when you take on the project delivery arm you also take on the contract management. Some very, very large dam contracts were being built so I had the role of the Principal. I was 'the Water Authority' as it still was, on those projects.

I was Chairman of the Capital Investment Committee and I was still responsible for looking after the capital investment program. At this time, I introduced Project Management to the Water Authority. Now that doesn't sound like much but in those days, projects were delivered by one of the fiefdoms that would do the planning and then,

if they were smart enough, they'd pass the baton to the guys who would design it. It was always done in pieces like that and then, when it was all designed, they'd give it to the guys who would construct it. Very rarely would the construction people talk to the planners or the designers.

DAA Unless they insulted each other of course?

MH Well, so it was a baton-passing exercise and project management - this was 1984 when project management was just gaining recognition as a functional area. This is going back a bit. It's just taken for granted now but in those days it wasn't there. At this time the Branch was re-named Major Projects and Project Management Branch.

DAA Just digressing a little there do you think that was because it became possible from a computer system point of view [and] technically feasible to do it?

MH It made it easier. Certainly, it facilitated it but I think the need came from moving to contracts. I mean we started doing less and less work by day-labour and more and more by contract.

DAA So, your administration has got to be tighter?

MH Yes, it had to be and, therefore, there were stronger links between the planning, design and the delivery people and the sensible thing is that you have one project manager who gets involved with the planning, design and the construction. The problem from an organisational point of view was that the designers hated the thought that there was someone who was not a designer telling them what to do. And, more often than not it was someone from the construction area who became the Project Manager.

Anyhow I introduced project management. It worked. It worked really well. We started delivering projects on time and on budget much more effectively. We had control.

There were all sorts of things becoming more prominent like Occupational Health and Safety which was now mandatory.

Previously it was such that if you were a good leader, you'd do it but now if you didn't do it you could get thrown in [to] jail. The same applied to environmental matters. If previously you were baton-passing in an organisation it was always someone else's problem but now it became the Project Manager's problem and you had to get all those things cleared through from planning right through to handover to operations.

We delivered some interesting projects in that time. We started the largest dam building program that the state had ever seen. That was where my interest in considering more effective contracting methodologies started. What was happening with the large dam contracts such as the Harris River Dam, the Victoria Dam, the Conjurup Dam, was that at the end of the contract you'd have seriously large claims that inevitably ended up in arbitration or litigation. This was because of the contracting difficulties that exist when you're building dams, such as foundation problems, soil variability, rock that appeared from nowhere, what have you.

DAA The devil was always in the extras?

MH Yes, that's right and what we would have - and I was involved with the supervision - you'd have piles of specifications that were written so that the contractor couldn't get away with anything - and of course the contractor would start the project and the first day on the job there'd be this guy in the corner with glasses, very pale. He would be the claims consultant who was case-building from day one. That was the nature of the industry and I thought 'there's got to be a better way'.

And I started looking at partnering. Partnering was a concept that was introduced by Chuck Cowan, Charles Cowan, who worked for the Navy - in America. The concept was that the objectives of the client and the objectives of the contractor were actually the same it's just that nobody ever took the trouble to recognise and acknowledge it. He set up a way of dealing with disputes which then became escalated in

a very structured way, but they'd be sorted out on site unless it was a really, really big problem.

The concept that Cowan introduced was to add a 'covenant of good faith and fair dealing' which didn't exist in normal contracts - it was never written in. His approach was to have a normal contract and then he'd have this partnering agreement which said 'this is how we're going to manage that contract'. That was the fore-runner for relationship contracting which changed the face of contracting.

The next step in this evolving field of relationship contracting was 'alliancing' and I took a key role in introducing that in both Western Australia and nationally. I'm sort of getting ahead of myself a little bit but one of the largest projects that was going at the time after the Water Corporation was formed was the Waste Water Treatment Plant at Woodman Point. That was a \$300,000,000 project in 1988/89.

DAA Was that the first one?

MH That was the first Alliance Contract for public infrastructure in Western Australia. It was the third one in Australia. But the very, very first one which started it all was the East Spar Project, a private sector project. This was a floating platform that was being built in Bunbury and was floated out, and they did that as an Alliance. That was 1984 and they had a disaster on the project where the bund walls, that were holding this floating platform they were building, collapsed. Now if that had been a normal contract that would have seen two years in the courts and the lawyers would have been the only ones that got rich. But because it was an Alliance those problems were sorted out on site, there and then, with the contractor and the client together.

So, I was describing the very first alliancing project I was involved in and I'm sorry I'm getting out of my time scale here because I'm jumping ahead but I just wanted to point out that the alliancing concept was something that spread throughout Australia. I'll come

back to that because I think alliancing was a big part of my career and I'd like to sort of elaborate a little bit further on that.

DAA I'd like you to very much because it's obviously fundamental now to the way we operate isn't it?

MH Yes. It's all about relationship contracting. So, coming back I was Manager Major Projects and Project Management Branch which led up to the time of the creation of the Water Corporation. The significance of moving from the Water Authority to the Water Corporation was the Water Corporation became a government trading enterprise like Synergy, Horizon Power, like the Fremantle Ports, and that meant it was in control of its own destiny as far as the commercial side of the business went. All the money that it collected paid for its operations and what have you. The only thing that spoilt that beautiful model is that the government sets the price of water and collects a handsome dividend which in turn determines the revenue the Water Corporation received.

But a Government Trading Enterprise is a statutory organisation that's got its own power. It has to produce its own strategic development plans, it has to produce its own statement of corporate intent, these are all the mechanisms that are required to enable you to perform as a Government Trading Enterprise.

DAA Okay, who's the shareholder?

MH The State. The owner is the State

MH There was a lot of a lot of work that went into creating a Government Trading Enterprise and once again I was at the forefront of working towards that. At this time, I was appointed General Manager of Engineering Services [so] I'm now a member of the Corporate Executive that's responsible for driving this move towards a Government Trading Enterprise. The General Manager of Engineering Services was responsible for the Project Management and Construction Branch, three major design Branches - the supply area,

the vehicle and plant and all the remaining engineering services. So, I had a Directorate with 1100 people in it.

DAA Did you have IT?

MH IT was a part of that as well because they didn't know whether that had a commercial [role] or what have you.

DAA It's often very hard nut to crack too, wasn't it?

MH Yes, and at that stage IT didn't have the prominence that it has now, and it was emerging as a very important part of the organisation. I don't think it stayed in Engineering Services for long but it was there when I started in the role. I don't know if you might recall the McCarrey Report?

DAA Yes, I did. I do.

MH Well the McCarrey Report had an impact on my Directorate because the CEO Wally Cox at the time said 'we've got to look at all those services and we've got to see if they can be privatised' and we set about working out the best way of doing that.

Now, when I first got to be General Manager of that Directorate, I had this idea that 'if ever we had to sell these Branches like the Design Branches or the Construction Branch what would we need to do to make them attractive for someone to buy them?' It was just an idea I had because I thought that, this way, I could make these Branches operate in a more commercial manner.

DAA Well it's a sort of benchmark isn't it?

MH It is. So, I worked on the cost multipliers that we needed in those Branches and they were set up as a commercial organisation in the private sector. Now, these were quite large Branches and each Branch had about 60 or 70 people in it. One was for Water Supply, one was for Sewerage and Drainage, and we had a Mechanical and Electrical Design Branch.

When the McCarrey Report came in we looked at all our services and came up with a clever way of determining whether they should be sold or whether they should be retained and the Design Branches were put on the market. Now you can imagine the change that that could potentially impose on the 1,100 people in my Directorate.

DAA Well, not only the actual physical change but the cultural change?

MH Quite right. The likely impact on people's lives was just extraordinary, and the fundamental philosophy I had about managing all this change was communicate, communicate, communicate. Tell the people what you're going to do. Tell the people when you're going to do it. Tell the people why you're doing it, and do this over, and over again, and always at the end of it say 'there will be options for you. You will have choices. You will have a choice whether you stay, you will have a choice whether you go with the people that are buying your Branch. I believe that provided some relief but it didn't remove the fear entirely.

I'm very proud of the way we privatised those Branches because we included in the evaluation criteria for those hoping to acquire these Branches what the people in the Branch thought of the organisation that was going to buy them. These are very attractive purchases for the industry as the Water Corporation employees had a lot of experience and a lot of knowledge. And the people who were buying it would talk to the Branch and say 'this is what we will do, this is what our values are, this is what our culture is, if we take over your Branch'.

I sat in on one of those to make sure that our people weren't having the wool pulled over their eyes and it was interesting that the company that bought the Water Supply Branch was GHD because that engineering consultancy had a culture that was closest to what was going on in the Water Corp at the time. So, it was important for the employees to see that we were taking their thoughts into account.

DAA Okay I'll just stop there.

- 5 MH We did the same exercise with the other Branches and we divested the majority of the Branches in the Directorate. The end result was that I finished up with a Directorate with 380 people.
- DAA Alright. So, just to recap, you sold branches as going concerns and they became private companies in effect?
- MH No. They went to a private company.
- DAA They went to a private company?
- MH And they became a Division in that private company and, interestingly, the majority are still there today. The same people, I bumped into some of them from time to time and they said it was the best thing that ever happened to them.
- DAA It's an incredible cultural shift though isn't it from the Public Service to a private [company]?
- MH Oh yes.
- DAA Well certainly we don't think twice about it today do we?
- MH No, but at that time - you can imagine that this was at a time when the Unions still had quite a bit of power. There were blue collar workers involved, there were also CSA members involved, and so, in the nine months that it took to organise this very large privatisation exercise, when the number of employees dropped from 1100 to 350, we never had a problem with the Unions, and there was never any adverse media attention.
- DAA Well, there would certainly have been their sensitivities?
- MH Yes. It never got in the headlines or anything. That was something I was really proud of the way that that went. It was the sort of thing that goes under the radar and no one notices.
- DAA Isn't that the way though?
- MH Yes.
- DAA That's a measure of your success?

MH Yes, that's right to some extent. Yes.

DAA I've always worked on the philosophy - at a lower level than you're referring to but with my team - that there were no surprises, I was open and I think that that's a very important point isn't it? No surprises. These are the options and these are the choices.

MH And people respect that.

DAA I think they do. They know whether you're genuine [or not].

MH Yes, that's right. That's called 'authentic leadership'.

DAA Is it? Right, now he tells me!

MH But that's so true and if you aren't prepared to have the office door open and have people come in and chat about things then you're not dinkum.

DAA Well that's fascinating [and] what a period to be in?

MH I know. It was very volatile because other organisations which were also going through similar downsizing had enormous problems.

DAA Yes, and just on an associated issue you mentioned the Unions. Did we have a Labour government at the time?

MH Yes.

DAA That would have been a delicate piece of politics as well?

MH It was very, very delicate. Well, that was the Burke government and then Arthur Tonkin - I think that's the way it went.

DAA I've got a feeling Tonkin came first but anyway we won't argue because they certainly were associated.

MH Yes.

DAA Fascinating really that those sorts of changes which [occur].

MH I'm talking [about] Arthur Tonkin not John Tonkin.

DAA Oh, sorry, yes Arthur Tonkin. Quite right. Those sorts of changes which impact on the workforce are often driven, in a way, by a Labour government?

MH Yes. The other things that were happening in that Directorate included the dam building program and I would like to come back to alliancing - the concept of alliance contracting.

DAA Yes. Please do.

MH The concept of alliancing was first applied in WA on the Woodman Point Waste-Water Treatment Plant and we needed to convince the Board of the Water Corporation that this was a good approach. Now this was a pretty hard-nosed commercial Board and here we were telling them 'the principles of alliancing are based on trust and relationships and actually working with the contractor.' They needed some serious convincing!

Yes, [trust] and actually working with the contractor. You see, the concept of alliancing is that the contractor and the client are on the same team and the whole idea is that you price the job as if there is no risk - because you assume the risk will be taken by the people who can best manage it - and then you both work together to try and drive the cost down.

DAA Yes. Okay, and how does the contractor make a profit?

MH Well the start off is that you get awarded the project on the basis of - some people, my Minister, used to call it 'a beauty contest.' In other words, 'what's your financial position, how good do you look' in terms of what you've done in the past. And you have to demonstrate your capability.

DAA Yes. In other words [demonstrate that] they're capable of doing the job?

MH Yes, and you also have to price a component of the job to show you're competitive but once that's happened and you are awarded the contract - and I could spend a day talking about how that happens -

but once you're awarded the contract you then have to come up with the price. And the price - it's called the 'target out-turn costs', the TOC, and the price has to be agreed by the client and the contractor. And the idea is that the price is the best possible price that you can get if everything goes right. So, it's the true cost. Now that's different to when you tender in a cost competitive environment where you play games with the price.

DAA Oh, it's a classic gaming exercise?

MH That's right, you muck around with risk - how do you price risk and 'oh, we won't worry about that because this might not happen' and you get a false price which Treasury believe 'well, that shows it's competitive because it's the lowest price'.

DAA It is indeed.

MH Coming back to the target out-turn cost, what happens then is that you get agreement on that TOC and the contract is then formally awarded and the contractor then has to achieve the delivery of the works were for that cost.

DAA Okay, but just coming back to my question, how does he make a profit assuming that that's acceptable?

MH Well the TOC is completely transparent, including provision for Corporate Overheads and Profit (COP). Any direct costs incurred have this COP added.

DAA Right.

MH So, it's transparent. I mean contractors are there to make money and the COP has been previously vetted and approved.

DAA Of course, yes.

MH Everybody understands that and as the bills come in, and as the wages allocation and everything comes in, [then] it's completely open book and the client sees it.

DAA Yes.

MH Usually the Cost Control Clerk is one of many people from the client's organisation, working as part of the project team on the contract.

The contract pricing is incentivised. So, that if you've got this TOC and the contract final cost comes in under, then the difference is shared between the contractor and the client. If you go over the difference is also shared between the contractor and the client. And it's amazing how that focuses the mind.

DAA Yes, I bet it does.

MH And, once again, I'm getting ahead of myself but with a project we did in Main Roads we had a saving of \$75,000,000 Now, that was \$37,000,000 that went to the contractor and \$37,000,000 that went to Main Roads and I'll come to that later as to what happened.

DAA That's a substantial sum of money?

MH And that is what makes the Treasury people really worried, because here's an Agency with \$37,000,000 that could have built three schools, or half a hospital, deciding what they're going to do with it. What I always did with it was pour it back into the project with Road Safety initiatives such as wire rope barriers and such like and made a far safer project with the same cost.

DAA So, you could gain some benefit if you managed it well and that benefit would accrue to the organisation?

MH Yes. And you've got to remember when the target out-turn cost came in often the contractor would put zero in for risk. Now that meant, more often than not, that the profit margin was relatively low by industry standards

DAA It's not high is it?

MH It's not high, but if you get an extra \$37,000,000 on a \$750,000,000 project then that profit margin increases Significantly.

DAA Indeed.

MH Right? And that's what drives the whole thing.

DAA Mmm, okay.

MH It's a wonderful mechanism which really works. And people who work on an Alliance they just don't want to work on any other type of project because everybody's cooperating, there's no claims fight at the end of the job. The legal costs that arise from litigation don't happen because there's a clause in the contract that says if the parties fail to resolve this problem, all the parties will walk away. Now, there's no way in the world that a contractor will walk away from a project that's half-way through. There's no way in the world that a client will either.

DAA They can't, no.

MH They can't. And that little clause frightened the hell out of the Solicitor General. I had long, lively discussions with him because he used to say 'this is going to be a 'train wreck', you're going to have no end of trouble' because instead of those piles of contract specifications and other documentation that we had - we now had a 50-page document that was the entire contract

DAA And not only that, people actually read it?

MH Yes. But the interesting thing is you never had to pull it out - even the 50-page document] It sat on the shelf because everybody accepted that 'there's no arguments about specification because you said you were going to do the job for the agreed TOC, these are the Standards, now go ahead and do it'.

DAA And that's a key word isn't it 'Standards' because in that you refer to the Engineering and Industry Standards that you're using. That's it.

MH Anyhow that's the mechanism of Alliancing and I pushed that very hard in WA. I pushed it hard at a national level where I was involved in a lot of conferences and industry events. The first one that happened in New South Wales was done with me working collaboratively with my counterpart in New South Wales because he

rang up and said 'I've got a problem here. How the hell do you do these Alliances'?

I don't know if you've seen the Sir Lawrence Hargraves Drive?

DAA No, I haven't.

MH Well it's that road that goes out on the ocean and curves, like that, and the reason they had to build that was because there were landslides that were occurring on the road. And the government said to my counterpart 'you've got to fix that in 18 months' and it was such an enormous task that they couldn't possibly do that in that timeframe using conventional contracting methods. They had to move mountains to fix the road, so they said 'forget the existing road, we'll go out in the ocean' and they built a two kilometre bridge out in the ocean. It could only happen successfully if you used an Alliancing or relationship contracting approach.

DAA Yes.

MH Sorry, I'm going down the path [about Alliances] but it's something that I'm pretty passionate about.

DAA That's alright.

MH Unfortunately, the Treasury officials hate it. They hate giving that level of authority to a CEO.

DAA And, of course, that in itself is a cultural shift isn't it?

MH Unfortunately, they can't shift. And in fact, they've won out. I did three or four very, very successful very large projects. The Gateway Project at the airport was a large Alliance. All the Treasuries around Australia have got together - and said 'the only way you can do a pure Alliance contract is if you go to the Minister and show that that's the only way you can do that project. There [are] also additional requirements to such an extent that CEOs in WA don't have the desire or the confidence to go down the pure Alliance route.

And that was the exciting thing because no one could say you were doing it wrong because it hadn't been done before and that's [it]. And if you've got the right principles driving it [then] it'll work and you've got to have the people with the confidence to do it and you've got to have that.

I had very [good] support from legal people in Freehills Hollingdale and Page at the time. They were the first lawyers that I'd ever talked to who said 'we can actually write a contract that does what you want' and they wrote it. The first one.

DAA Wow, that's fascinating.

MH So, sorry coming back to my career in the Water Corporation, alliancing was an important part of what happened when I was General Manager of Engineering Services.

My next role with the Water Corporation was as General Manager of Customer Services so I went from Engineering Services to Customer Services. Customer Services was state-wide operations so that covered water, sewerage, drainage throughout the state.

DAA Now we're talking about operational matters?

MH Yes, pure operations.

DAA Making sure that the water gets delivered?

MH That's right. So, I became General Manager of Customer Services, which in hindsight was exactly the right thing to call it but at the time I don't think they realised what it really meant. I started looking at 'what does it mean to provide customer services in the Water Corporation' context. There had never been a customer service focus - I'm talking strong focus on customers - in the water industry. It had always been our role to make sure that people got water and there was always a focus on the engineering side of things.

I started looking at what happens with good engineering organisations that have a customer focus and I started playing around with what does it all mean for the Water Corporation to provide a good customer

service. We couldn't answer the question as to whether we provided a good customer service or not.

What was happening elsewhere, and not necessarily in the water industry, was the use of graphical rosettes which helped determine if you're good at customer service. If you knew what your customers wanted; who your customers were, and a wide range of customer-service related things. I did a survey and we failed miserably and so my passion at that time became 'well how can we actually improve it'. We developed a customer service strategy that was a long-range plan as to how we could address our shortfalls.

Two years after I started in the Customer Services Directorate the Water Corporation won the National Customer Service Award Australia-wide for large organisations. It was something I was keen to participate in because it enabled you to find out where you stood against your peers such as Qantas, AAMI, IKEA and what have you. That became a bit of a passion and my CEO at that stage who thought this was all bullshit and he [would say]

DAA He wouldn't have been alone in that of course?

MH But this was all while I was General Manager of our state-wide operations and state-wide customer service, which is no small feat. I mean we had over 1,000,000 customers. I got a real buzz out of the fact that we set up a Customer Contact Centre. Now, that sounds so obvious but we didn't have one so now if people had a complaint, they could actually talk to someone. The Customer Contact Centre that was the first one in Australia for the water industry. I also set up a Customer Advisory Council. I got people that represented our customers that came to regular Council meetings. All these ideas were - they just didn't come out of my head - that's what good organisations did so I just applied the same stuff. No brainer really, but it was actually doing it that made the difference.

DAA You've got to be open to it though?

MH Yes, that's right. But I had a CEO who wasn't and he actually ridiculed me in front of our monthly corporate Branch Managers Meeting about our pursuit of customer service excellence. This happened. a month before I submitted my application for the Customer Service Award. He thought I was wasting my time and should be concentrating on pumping the water. I mean, the only reason you pump water is to provide a customer service!

DAA Exactly, yes.

MH Anyhow he ridiculed me in front of the whole organisation and then two months later we won the National Award. Immediately after that the Water Corporation was entitled to use the Customer Service Award icon on all its letters - then the CEO took the credit for it.

DAA Well, he would probably laugh himself because I mean that's human nature isn't it?

MH Yes.

DAA Mind you, they always that 'success has got many fathers', don't they?

MH Yes, that's right. That's right.

DAA Failure doesn't of course?

MH No, no.

But anyhow that was another aspect of my time with the Water Corporation. I did a lot of good things I thought as General Manager of Customer Services. There were other things that I did. The Quality side - at the time when the Water Corporation was formed it was set up with the Office of Water Services which was like a regulatory body to make sure that you were providing services properly. It's like the Office of Environmental Regulation and what have you. So that was set up, the Water Corporation was set up, and what was previously the Water Resources side of the Water Authority went to the Department of Water.

But the interesting thing is that if you have an Office of Water Services then you've got to demonstrate that you're doing things in accordance with the requirements. How do you do that? You set up a Quality Management System that deals with it. It's not really a Quality Management System it's, like, a Water Management System and I started doing that with all my Regions. I had seven or eight Regional Managers. And I got them all enthused about what they needed to do with this Quality stuff. . It was fundamental to the way they worked and it wasn't overbearing it was just sensible. The CEO didn't like Quality he thought that was bullshit and the early movements of Quality - the Total Quality Management - that stuff had all happened five or six years before. That had all passed and it was now embedded into the organisation However, he thought this was a reactivation of all the early Quality development.. It was far more than that. It was just sensible to do it, and he didn't see it.

So, we had a disagreement about that as well. You can gather I didn't really appreciate his management style.

DAA I'm surprised you survived?

MH Well, actually I didn't, because it just drove me to distraction.

DAA Right, well it would. It would.

MH And shortly after I was asked to vacate the post of General Manager Customer Services and I became Group Director of Major Projects or things that were odd jobs in the organisation that needed someone at a very senior level to oversee.

DAA Could you have [been] put on one side do you think?

MH Mmm, of course I was. I mean the day I left Customers Services Division all the guys came in and they all wore black arm-bands because they were really upset about it.

DAA Really?

MH I was too.

DAA I believe that too.

MH I was too, but anyhow

DAA It still does [hurt] though. I can tell.

MH It was just annoying. Anyhow, I then became responsible for transferring all the irrigation schemes from government ownership to private ownership. We had the Ord, Gascoyne and Harvey irrigation schemes and I was responsible for transferring those to private ownership. Once again these are significant schemes. I mean the Ord River is a huge scheme, and how do you go about privatising irrigation schemes?

You set up a private co-op: you bring in all the farmers, and pick the most likely ones to sit on the Board that will run the coop. Then there are endless discussions around governance, administration, financial management, asset management and all the corporate arrangements to make this work. I did that very successfully and transferred the Ord River Irrigation Scheme in just over 18 months.

Harvey happened at the same time. Gascoyne was really interesting because the farmers up there were not terribly sophisticated and were 'down-to-earth' sort of people. To have them trained with the responsibility of Directors and managing a significant irrigation scheme was an interesting and very rewarding aspect of transferring the Scheme.

At the same time, I became the Chairman of the Alliance Board for the Woodman Point Waste Water Treatment Plant. I was able to implement the principles of alliancing because this was another large project that I was most suited for.

DAA Mmm. Just digressing a little, I suspect that you weren't sidelined at all [but] that you were, in fact, given a couple of missions that were significant?

MH Possibly, but I felt sidelined. Because I was doing a good job and I was enjoying the job and achieving things.

DAA Yes, and you probably looked it in what you'd achieved but when you look back?

MH Well yes. Well there was the Woodman Point Project and, also, I became the Director - the Project Director - for the first desalination plant and I actually got that up and running.

DAA Yes.

MH But once again I was Project Director. So, here was a case where if ever you needed a desalination plant for environmental and sustainability reasons, they were all there. And we had cost estimates, we could do it, and I put a paper to the Board through the CEO and he'd look at that and he'd say 'no. I'm not ready for that yet'. What he was worried about was that if we built a desalination plant for \$300,000,000 it would rain for 40 days and 40 nights and stand there like a white elephant - as has happened in Victoria. But that's so short-sighted. I couldn't believe that he could be so short-sighted.

But in the end the papers that I put forward were compelling enough for the Board to agree to invest in the State's first seawater desalination plant. The CEO got the credit for being so far-sighted! And once again that was going to be delivered as an Alliance Contract because there were major issues about the technology and environmental clearances. So, they were my last projects with the Water Corporation.

DAA I'll just raise one point though. You say the papers went to the Board. There was a lot of work went into those papers you know?

MH Oh yes.

DAA The 'devil is in the detail' as they say but you would have done a lot of work?

MH That was my responsibility and if I'd stayed with the Water Corporation, I probably would have chaired the Alliance Board for that project as well.

DAA Right, okay.

MH But, as it happened, I was getting a bit tired of my work environment.

DAA Yes, well, you'd certainly been working hard coming up [against it]?

MH Well, it was now 2001 and I'd been General Manager of Engineering Services for three years; General Manager Customer Services for two years as well as a stint as General Manager Commercial. I felt I had performed well and achieved many things for the Water Corporation. And then I had that role of the 'odd job guy', albeit for a most senior position, for four years, and I was at a stage where I wanted out.

DAA Alright let's have a break there.

6 DAA Right, now, you come to the end of your period with the Water Authority?

MH Yes.

DAA What now?

MH Well the last thing I did with the Water Authority was I was at the official opening of the Woodman Point Waste Water Treatment Plant - and that was in 2002. I think it was June 2002 and it was opened by the Premier Geoff Gallop. And at that opening Geoff Gallop announced that I was going to be the Commissioner of Main Roads. I knew I had been appointed to the position but it was just wonderful to have that sort of broadcast to some very influential people who were at the opening and he made the comment that 'well, it might be Water Corps loss but it's Main Roads gain'.

So, that was 'the transition point' if you like because in December 2002 - that's when I joined Main Roads as Commissioner of Main Roads. That was the start of another career journey because now I'm working in a totally different industry. But there were many parallels between what happened in the Water Corporation and what I was going to be doing in Main Roads.

The common functions and activities like program and project delivery, working with people, the customer service side of things - all the same issues. There had been serious issues at Main Roads because they had just gone through extraordinary turmoil. This was in the days when Ross Drabble had been appointed as the Commissioner, which was a political appointment. He got into a lot of trouble at a time when there was a large surge of outsourcing. This out-sourcing had happened in other organisations such as the Water Corporation previously, but it had only happened belatedly in Main Roads. The organisation had gone from some 3000 strong to below 1,000 when I arrived - and the turmoil that created was still there.

DAA Tremendous amount of anxiety?

MH It was just terrible. They had little self-confidence and they were upset with the whole world; they were upset with politicians, they were unsettled. And these were such good people. Very experienced, very professional and committed, and had worked in Main Roads for many years. It was just amazing the talent that was there. Every time you had a problem, you'd find someone in the organisation who had an international view of that problem and could tell you the solution using the latest emerging technology. That knowledge and talent was gold to my way of thinking. I saw my role as restoring the confidence in themselves. I started a process of strategic planning which was probably a little different to what had happened previously. Previous Commissioners had done strategic planning at the same time as Public Works. Remember I referred to when we were just starting the Public Works strategic planning. Main Roads had started on that path at the same time but it hadn't progressed as far as the Water Corporation. At Main Roads strategic planning was cursory, although it was well done.

So, I started off from what I had learnt in Water Corp and started down this path of having a very clear sense of direction for Main Roads. We spent many days working out what people agreed should

be the direction and what are the major strategies that we needed to develop. Fairly fundamental strategic planning stuff but the thing that I believe I did differently was ‘okay, that’s your strategic plan now how are we going to do it and how will we know if we are successful’? I established a number of ways of achieving that in Main Roads.

There were the strong fiefdoms again. The planning people didn’t talk to the road network people, who had little to do with the designers who thought the HR people were a nuisance and so on. I’d set up little action groups (not committees) that cut across all the Directorate boundaries and often I’d use middle managers, or young people, on these action groups to develop some of the action plans necessary to fulfil the strategic plan requirements and it helped bring the organisation together to some extent.

Probably one of the more significant things I did in terms of changing the direction and culture of the organisation was I had a real long hard look at organisational values. Now usually in an organisation that says ‘oh we’ve got to work out the values’ they spent a couple hours working out the values and they put them in a frame on the wall and say ‘there’s our values guys’ and that’s the end of it.

With Main Roads we took it several levels deeper and dug deep to find out what were the real values, and what makes the people of this organisation tick? What makes them proud to be a Main Roadian? And we came up with some valuable insights and the searching exercises became quite emotional as we “made contact” with the strong feelings that arose during the major out-sourcing exercise.

DAA With the what?

MH With the out-sourcing.

DAA Yes.

MH One of the participants at the workshop pulled out of his pocket - out of his wallet – a piece of paper with a little poem that someone had

written, one of the people that was going to be out-sourced. He read it out and it was emotional and there and then we decided this was like a family in mourning and we came up with our 'family value'. This value tugged at all the heart strings that people had in the organisation. Because what does a 'family' mean? It means mutual respect for each other, it means looking after each other, providing support for each other. A whole bunch of things like that. So, that became our number one value and it's still there today.

And we then worked out the other things that were important - not the typical values like honesty and integrity, they are the tickets that get you on to the bus - but what's driving the bus?

So, we came up with this set of values and then we said 'okay, now we've got the values what do we do'? And we came up with a list of the behaviours that you would expect people to have if they followed those values. Then we started incorporating those values in our recruitment process. Now, Public Sector Standards says you can't do that but, whenever we were selecting people, we would have the set of values and our HR people would also assess how they fitted with those values.

We used the values time and time again. We used to have a performance appraisal process - and when I looked at the effectiveness people probably had a 20% participation rate. They just hated it. They just hated it because it was old-school Public Service type appraisal schemes - you know 'does he wear a tie to work', that sort thing. They were just shocking.

DAA Oh, I do. I remember it well.

MH We changed that completely and we made it so that we discarded appraisals and introduced individual development plans. You can put all those performance things in but only the things that were important. So, we developed those and included in those was 'how well do you understand the values and what do they mean to you'.

The first ones we did people started to understand them, but, after three or four times, people actually started talking about the values - thinking about the values

DAA They absorbed it?

MH Yes, they absorbed it. But that was a significant cultural change which took two or three years, and we started using the values. That was the difference.

DAA Yes.

MH I'm rabbiting on a bit about the strategic planning and the role that HR played was very important and to ascertain our HR requirements and direction we conducted a survey of our people to determine what we were doing well and where we needed to improve. A previous, similar survey that had happened in the Water Corporation was conducted by the same consultants to do that in Main Roads. The thing that I wanted to see was 'what are the 10 most important things for people in the organisation' and then another thing was 'what are the things that we do badly in the organisation that needed to be improved'?

And I found, because I've learnt what the previous CEO had done in Water Corp, I said that what the aim of this was that we would make sure that the things that were the top five that we didn't do well, when we did the repeat survey in 2 years that they wouldn't be the top five. Pretty simple stuff but things that people understood and that people cared about. And we drove that hard. There were all sorts of obvious things that you could improve on and we did it. We actually then went back to the people with the same consultant 24 months later and said 'remember what you said, well this is what we've done'.

DAA And they said 'did we say that'?

MH Well the survey showed it, you know.

DAA Yes, of course.

MH The survey showed it. So, there's a lot of this HR stuff that we did.

I think there was also the hard action plans like ‘what do we do in road safety, what do we do in environmental sustainability etc’ all those things were also happening, but unless you had the people on side and the right people with the right values then those things wouldn’t happen anyway.

DAA If I can just digress a little there when ‘push comes to shove’ and you’re not there to supervise people - and you’re not, of course - when they have to make a hard decision it’s the values and the direction of the organisation that determine [what they do]?

MH Exactly, and when you’ve got a conflict - like a typical conflict is ‘oh we’ve got to do this for the environment, oh we haven’t got a budget to do that’ then you fall back to the values ‘what do the values say’?

DAA Yes.

MH And that’s the reason why decision-making is then based on the right principles.

DAA Yes. It seems so fundamental but it wasn’t at the time?

MH The point you just made was that we had as one of our banners that ‘we are a value-based decision-making organisation. If you look at our strategic planning of that time those principles are embedded all through there. The strategic plan helped change the direction Main Roads was taking.

Another thing that was very prominent was we considered ourselves an organisation that was responsible for building roads and maintaining them and it was almost as if the people that drove on them, the road users

DAA They were incidental?

MH That’s right. It was like the ‘Yes Minister’ episode where Sir Humphrey considered that these hospitals and the hospital system would be perfect if we didn’t have these patients stuffing them up!

DAA No, but not without reason and of course engineers, as we are, they came into a lot of criticism because of that view of the world, didn't they?

MH Mmm/

DAA Not necessarily fair criticism but nevertheless.

MH It was there.

DAA It was there wasn't it?

MH Yes, so what I learnt in Water Corp was all about Customer Service and I started saying to people in Main Roads 'the road users are our customers, whether they're truck drivers, taxi drivers, bike riders, car drivers - they are our customers. They use our services. Our service is to provide a safe and secure road system'.

And how do you introduce Customer Service into a road agency that doesn't even regard its road users as customers?

DAA Yes.

MH What I'd learnt in Water Corp was to go back to that rosette and work out 'do you know who your customers are? Do you know what is important to them? Are they happy with the service we provide? Do they know we provide that service? And once again the same sort of thing we had no idea.

I used a very competent and effective lady who started driving this for me. It wasn't me that was out there driving this- I would be so fortunate to have someone who would latch on to those principles That's what happened in Water Corp. I had a really good guy, with passion and enthusiasm, and then I had an equally passionate and determined young woman who applied that enthusiasm to Customer Service in Main Roads. I said 'look at the international customer service standards, look at how you can actually work out where we are'. She did all that and came up with these areas where we had to improve'.

We came up with strategies to address that, and then action plans, and we finished up with a Customer Advisory Council in Main Roads, a Customer Service Centre - not an Operations Centre but a Customer Service Centre, the first one in Australia in the road industry. They're all over Australia now, but, when I came to the road industry, we didn't have a customer service focus at all.

So, Customer Service was another part of the strategic plan and when people latch on to those principles then they can see why we're doing these things. And once people get that line-of-sight between the strategic objectives in our strategic plan and the end result they have achieved. This gives people a great sense of achievement.

DAA Achievement and ownership?

MH And ownership, yes.

DAA Yes, absolutely.

MH Sorry I'm really not talking much about road and engineering things I'm talking about people things and planning but that's what happened when I went to Main Roads.

DAA I don't wish to disappoint you but 'people things' and planning to me are one of the fundamental challenges of engineering.

MH Mmm.

DAA You know, people - without them - and without planning you go nowhere?

MH At the time when I left, Main Roads in 2012 we were spending \$2,000,000,000 a year in capital works, and when I started 10 years previously the capital Works Program was \$600,000,000. We had a road maintenance program that was \$120,000,000 a year. We had to do all sorts of interesting exercises to increase the amount of money we had for maintenance because the stats were all showing that we weren't spending enough.

DAA Mmm. As an engineer myself I often say to people that they must, must remember - and I'm sure you would agree - that putting an asset into place is one thing, keeping it there is another [because] that's a big commitment - what we call a co-commitment I suppose?

MH Yes.

DAA But it is isn't it?

MH Yes.

DAA It's not easy.

MH And the politics of it is that there's nothing sexy about putting money into maintenance you know.

DAA No.

MH Far better to put it into ribbon-cutting infrastructure where politicians can be seen to be doing something.

DAA Oh, you could cut a ribbon and get all sorts of accolades for that but keeping that bridge in place or that road in good shape?

MH Yes, and it takes a pretty brave politician to go in and fight for maintenance money.

DAA Well, there's no accolades are there?

MH No, no.

DAA No.

MH The biggest I had in terms of what I didn't achieve in Main Roads was the depth of thinking and application of asset management. The water industry was very strong on asset management. In Main Roads and in the road industry generally asset management as a function was not as considered - or as sophisticated - as it should have been. I always had the view that Main Roads was in the asset management business. It was fundamentally an asset management organisation.

DAA Indeed. I mean roads wear out, don't they?

MH Yes, that's right. So, it's not only building them you know it's 'womb to tomb' philosophy that you have to manage.

DAA Yes.

MH I think also in Main Roads doing asset management wasn't high profile or challenging. It wasn't sexy.

DAA No?

MH No, and engineers in particular would rather build things. Main Roads I really enjoyed the time there. I achieved a lot and I believe I was well received and earned some respect from most of the people in that organisation.

I was keen to train and develop people. One of the external roles I had when I was at Main Roads was that I chaired Austroads. Austroads is the National Organisation of Road Agencies in Australia and New Zealand. In that position I also became Australia's first delegate to the World Road Association. That means you sit on the Executive Council of that organisation' and I subsequently became Vice President of the World Road Association. The governance model that the World Road Association worked to was to use their strategic plan to set direction in gathering all the knowledge, experience and the latest emerging technologies within all the government road agencies throughout the world [and] the findings would be categorised under areas such as bridge building, road building, road safety etc. The WRA worked through committees made up of international experts in their field with the objective of achieving specific outcomes in that area, and they would work collaboratively for four years to achieve it. And then every four years the WRA would conduct an international Convention where all those findings are produced. It was like the Olympics of the road industry!

It's a wonderful organisation with its headquarters in Paris and a Secretariat of about 10 or 12 people who support it. The reason I mention the committees is that I was always very, very keen to have

my people involved at an international level because you learn so much and you develop so many networks. Most of all that knowledge that was gained was brought back to Australia and kept the road industry in Australia at the forefront of developments.

DAA All that is true but, of course, you're also absorbing what's happening out there?

MH And keeping up to date with best practice.

DAA Yes.

MH So, I would try and have three or four people each year participate in those committees. Unfortunately, people who did not understand the value of the international exchange of knowledge and information at such a high level thought the travel and meetings associated with these committees were junkets.

DAA And it's not is it?

MH Of course, it's not. It's how we maintain our currency in so many areas and, I guess, I've always had that attitude to training and development that you really need to do that with your people.

DAA It's an investment?

MH Yes. I had hoped that that would sort of continue on as a legacy. A legacy I did leave however was the organisation's approach to sustainability.

In 2003/ 2004 there was a State Sustainability Plan introduced by the Government and unfortunately there was little commitment or follow-up on the Plan, other than every Agency had to produce a Sustainability Plan.

I was particularly interested in seeing if there was some way of improving sustainability outcomes on infrastructure projects particularly whole-of-life sustainability outcomes. A road and bridge project on the Great Northern Highway was being delivered as an Early Contractor Involvement model and the project team – Team

Savannah – was keen to determine how you can actually measure sustainability on a project. They developed their own sustainability rosette which featured a means of measuring all the good things in sustainability like recycling, and climate change, and waste water, and environmental pollution, and all those things. And they came up with a way of actually measuring sustainability performance and I thought it was fantastic, and felt we should do that on all our projects.

Two years after that the Australian Green Infrastructure Council started and they had asked the government to host an introductory meeting but they were not interested. So, I hosted it because it just fitted in with the Main Roads Sustainability Strategy, which was an important part of our Strategic Plan. What the AGIC was proposing to do to measure sustainability performance when delivering infrastructure was really impressive, and not dissimilar to the approach we had developed with Team Savannah.

That organisation became the Infrastructure Sustainability Council of Australia and when I finished at Main Roads, I got a call from the Chairman saying ‘we’d like you on the Board’ and that was in 2013. I had just finished at Main Roads, and I’ve been on the Board ever since. And what’s been achieved by that organisation is just amazing.

When ISCA started, it had \$3,000,000,000 worth of projects either registered, or contemplating registration for assessment of sustainability outcomes on projects. The use of the IS Rating tool evolved to such an extent and such a degree of sophistication that now it’s mandatory that it be used as a condition of funding for projects. At the moment there are more than \$100,000,000,000 worth of projects that are using that tool. That is an amazing achievement, and what that has in turn achieved is that it has improved the infrastructure sustainability of those projects not just when you build them but also for the whole of their lives.

DAA Whole of life. A key issue [isn’t it]?

MH Yes, and most importantly, how that infrastructure contributes to Australia's contribution to the United Nations' strategic development goals.

DAA Yes

MH So, I've had an interest and a passion in that area. I'm going to finish with the Board of ISCA in October this year because five years is probably enough but I've seen it go through a development phase that's just incredible and there has been a lot of satisfaction in seeing that. Started off as a little gem, a little sort of seed that was sown on a project in the north. It wasn't because of that that all this happened because it was happening at the same time, but it was just a happy alignment.

DAA Mmm. And dare I say there's a lot of quiet achievement gone on which doesn't make the headlines but actually makes a difference?

MH Well the project that we introduced the ISCA IS rating tool was on the \$1,000,000,000 Gateway Project - the large airport project.

DAA I watched that develop with interest.

MH That Project achieved a very high IS rating score. This was achieved in design and in 'as built and constructed'. That was one of the largest projects that we applied it on in Western Australia. But Main Roads now has a policy where the use of the IS rating tool is mandated for all projects over \$100,000,000. Now I think they've dropped it to \$50,000,000.

DAA Mmm. Just touching on the Gateway Project that makes me think about the relationship with the Commonwealth Government and I presume that that project has had a detailed relationship with the Commonwealth Government?

MH Yes, it's joint Commonwealth funded. I think it's 'four for one' tied grants.

DAA Let's just stop there a moment.

- 7 DAA You said there was a grant system?
- MH Yes, for every \$100,000,000 required for a project in the metropolitan area, \$80,000,000 of that comes from the Commonwealth, with the State finding the rest. Sometimes it struggles to find the rest but it usually finds it.
- DAA So how is a project like that managed?
- MH Well Main Roads is responsible for the delivery of that project. In fact, for the Gateway Project I set up the Steering Committee which commenced operation in the planning stage. I chaired those Steering Committees and we would bring the environmental people, local government, treasury people, anyone who was a key stake-holder in that project and we'd take it through planning and then delivery.
- So, the Steering Committee stayed there all during the project and amongst the many decisions that would be made was how it would be contracted out. It had to be done in accordance with government policy of course but people would have an input as to what type of project that would be. And then Main Roads would appoint a Project Director and that Project Director would then run with the project and that includes going out to tender, awarding the tender, and then supervising the design and delivery.
- DAA Mmm. How long does a project like that take from concept to completion?
- MH Oh, five years or six years.
- DAA More?
- MH Well depends on the complexity. The planning for Gateway started in 2006.
- Numerous factors need to be considered during the planning phase; what's the environmental impact, what are the utilities that are affected by this, do they all fit in with the planning; could there be a

fatal flaw if you put that project there. And then you get around to considering all the options and then you're ready to go to tender.

DAA Mmm and we say that so smoothly don't we [but] you and I know that there's a lot of sleepless nights [behind that]?

MH Oh yes, and awarding the contracts and beyond. I could go on and on about the stories around those sorts of things. you know.

But it's the 10 years in Main Roads that capped off my career.

DAA Dare I say that in that 10 years you will have laid the groundwork for much of what we're going to see in the next 25 years?

MH I'd like to think so. I think I had a fair impact on firstly the direction the organisation was going, in the way they go about their work, the nature of contracting, the things like sustainability, the way we deal with our people. I think that all had an impact but it can change overnight.

DAA Mmm. I remember in my time with the State Energy Commission how closely we worked with Main Roads because at a very simple level having the alignments of your highways and roads was crucial to our business - and we did very well - and so that we didn't go and dig up your nice new road when we needed to lay some cables across it. That never made us popular so it was all about planning really.

MH In any discussion about my career, I need to mention my family and the role they played in helping to achieve those milestones in my career.

DAA Please do. That's crucial.

MH To provide some oversight of what my family had to put up with was I had eight moves and postings in ten years.

DAA And a very patient wife I suspect?

MH Oh, a wonderful wife. I couldn't have done it without her love and support.

She worked in hospitals. She's a nurse. She subsequently did a uni course in social science and she did home and community care type work combined with nursing. At Kununurra, Bunbury, Wagin, Merredin and Collie, she worked either in the District Hospital or other nursing organisations such as Silver Chain. The boys, Jason and Marcus, grew up and went through some of their formative years in the country. My aim was always to have my oldest boy start High School in Perth so that he'd grow up with the kids that he went to school with.

DAA Makes them pretty resourceful?

MH And I did get back to Perth when Jason, the oldest one, started High School, so that worked out well. I think the kids adapt as you get involved with the local communities. I became the swimming coach. I did a Level II training swimming coach so that Jason started swimming when he was six, and he was a pretty good swimmer. I then took on the coaching role whenever we moved and Jason did well and Marcus enjoyed the swimming as well. But that's an example of how you fit in with community life so, every time you'd move to [another] town I'd play basketball, Monika would work in the local hospital and join the local art group and you'd become part of the community.

I think country life has got a lot to offer but it also was tough. It was particularly tough on my wife. She thought we'd have two years, in the country and when I got that construction experience out of my blood and we'd be back. We had a house in Perth that we'd just bought that suited our requirements and we didn't get back until ten years later with all those moves.

DAA Did you keep the house?

MH Oh yes, we rented it out and the first thing we did, when we came back, was we took the roof off went up and went out. That was in 1981. I'd gathered a bit of long service leave over this time - I had six

months of long service leave - and I became an owner/builder and did all that extension work, and only recently we did it again.

DAA You never learn?

MH I didn't learn and it was in 2008/2009 that we did another extension and major modification, and that's the house we're living in now.

DAA How many children do you have?

MH Two. Two boys. And we, my wife and I, just celebrated 50 years of marriage.

DAA Right good on you.

MH Which is pretty good.

DAA Good on you. So, she's had a fairly interesting life with you I guess?

MH Yes. I hope so!

DAA Good on you. It's an amazing resource isn't it to have a lady like that behind you?

MH Oh yes.

DAA Okay alright. So, are we finished with Main Roads?

MH Well, yes, I think so unless there's something you think I should add.

DAA I'm just wondering. We have pretty well covered it.

We talked about sustainability and it often looks to me as if people overlook the fact, as I said earlier, that roads and infrastructure wears out - it's got a limited life - but I think we're starting to see that internationally aren't we with bridges collapsing and things like that?

MH Yes.

DAA Do we have an issue here do you think?

MH The major issue that we have here is the backlog maintenance which is increasing. Now, if you're doing it right the backlog maintenance at the very worst should stay static. But if you've got an increasing backlog it means you've got a problem just around the corner.

Fortunately, we were able to secure modestly increased funding for maintenance and became much more clever at how you allocate the maintenance funds. This ensured the priority and really urgent stuff gets done. I learnt in the Water Corp that the worst thing you can do is write a report about how things are all going to fall down in five years if you don't get the money to carry out maintenance work. I wrote such a report which showed that in the Water Corp if you didn't get the funding I was seeking we were going to have problems with pumping water and sewerage overflows. The Treasury got hold of the report and said 'oh these guys want another \$50M a year because if don't get it, it's going to all fall down'. So, for five years they provided nothing and nothing fell down.

DAA Well of course not.

MH So, you don't cry wolf.

DAA No.

MH You don't cry wolf and I learnt that in Main Roads that you very placidly say 'we can make do with what we've got but we've got to change the way we do things. We've got to'. Ultimately you do need more money and so we've got a good understanding.

I'm not sure if Treasury ever forgave me for the way we set out long-term maintenance contracts as part of the out-sourcing I mentioned earlier. We set up term network contracts and they were set up in such a way that I automatically got annual increases for maintenance, so suddenly there was a contractual obligation for Treasury to find that money. So, five years later, when the next lot of contracts came out, they jumped on me and said 'you're never ever going to do that again'. They have long memories in Treasury, So, we went back to the bad old days where you had to prove each year how much you wanted and how much you needed.

DAA Yes.

MH I don't know how we're going time-wise?

DAA We're going well it's 12 o'clock. If we could just for another five or 10 minutes then we'll wrap it up for today.

MH Okay, another five minutes would be good.

DAA I would just like to talk a little about risk management because I would say that's one of the issues you looked at. Risk management from a point of view of accident rates and that sort of thing on the highways, was that a factor that came into your consideration?

MH We looked very closely at it. In fact, some organisations can prepare their entire budget based on risk management.

DAA Really?

MH We once adopted a theoretical approach to setting your budget based on risk. Like, if there was a risk of a bridge collapsing what do you need to mitigate that? And what do you do if the risk is that you're going to get increased road accidents. What do you do to mitigate that? So, for example, you have 'black-spot' programs.

Now, you could set your whole budget up that way like 'if you don't have so many people to deal with the day-to-day issues then this is going to happen so you need so much money. If you don't train those people to do that then you get problems.' We didn't finish up doing that because I don't think the government budgeting process aligns with that sort of logic. But we used that as a basis for driving what our needs were.

We did do risk management. We used the Australian Standard to help focus where our strategies needed to go and that delivered the action plans which ultimately gave the same sort of budget results anyway.

The Auditor General who was keen to see state agencies manage their risks and whether they had been adequately considered, I suppose that did indeed drive your budgeting process.

So, at the strategic level we did risk management. We did it on all of our projects anyway and that's where a lot of our expenditure goes in

terms of risk management. So, we did it at a number of levels. But it didn't drive the organisation.

DAA No?

MH It could have.

DAA What about design of roads though? I mean I look at the Gateway Project and to me it's a superb piece of work but I'm biased. But you can see there that the management of risk is factored into the Standards and the designs and all sort of things and it really is. To me it's a beautiful piece of work.

MH Mmm, mmm.

DAA Is that fair comment?

MH I'm not sure if risk management's the right word. It was probably more engineering excellence. The design is based on knowing the traffic volumes today - and designing the network to take capacity traffic in 20 years. There are Standards that you have to meet from a design point of view; from a road safety point of view and so on, and you have to meet all those requirements. So, if you then meet all those requirements then things such as road safety, risk, maintenance, long-term risks in terms of maintenance - all those risks are automatically covered.

DAA True. That's the way I see it and, of course, that touches on Standards. Were you involved in the development of Standards?

MH I was involved particularly on projects with questioning the Standards. On a normal D and C contract² contractors would have to meet all the requirements of the standards. However, on an Alliance Contract more often than not the contractor would say 'why do we have to apply that Standard to this'? And, of course, the keepers of the Standards in Main Roads would say sorry, you know, that's what the Australian Standard says so just do it'.

² D and C refers to 'Design and Construct'.

DAA This is the way we do it, yes.

MH But I used to have a requirement that if the keepers of the Standards couldn't explain why that is the Standard then they should be open to questioning it. And we did that on the Alliance Contracts because by questioning it you could achieve the same end by creativity and innovation and sometimes it'd be safer and it would cost less.

It was intelligent questioning. It wasn't just saying 'we can do it cheaper if you do it this way' it was 'no, hang on, why is it this way'? So that's what happened and I'd take great joy in it when that happened because it put our Main Roads people on notice. If they're the keepers of the Standards and they can't explain why, then they shouldn't be keeping the Standards.

DAA Yes. Indeed, well, I mean rules and regulations and Standards are for guidance, aren't they?

MH Mmm that's right. That's right. That's right.

DAA Alright well I think we've just about covered it so have we come to the end of your time with Main Roads then?

MH Yes.

DAA What year would that be?

MH December 2012.

DAA Alright well, that's a good time to stop then.

8 DAA My name is Doug Ayre and I'm continuing with the interview of Menno Henneveld for Engineering Heritage. The date is Wednesday the 3rd of October. Right Menno, now, I'd like to start with your comments on your public and professional recognitions and awards - of which there have been many. I don't know where you start but I'll leave this to you?

MH You don't go on your career journey even thinking about awards so it's quite humbling, and wonderfully satisfying to actually receive awards. That's because what you've done is really your job so to have

recognition that possibly you've done the job well is very, very satisfying. The one that stands out for me is the being a Member of The Order of Australia.

DAA Yes.

MH I mean that was recognition for an engineering career in public service and that's very satisfying because when I started my career the Public Service was not at the top of the ladder of a sound engineering career. People tended to look down their nose a little if you were a Public Service Engineer, which was unfortunate. I was always proud to be able to provide a public service so to have it recognised not just for the latter part of my career with Main Roads, but also for my engineering work in the Public Works Department becoming a Member of the Order of Australia, that was really satisfying.

Another award that was very, very satisfying was being recognised as the WA Professional Engineer of the Year. All the finalists in each State and Territory then competed at the national level in Canberra in the Great Hall of Parliament - and nominees included professors and doctors and so on. I really didn't give myself a chance but to then be awarded the National Professional Engineer of the Year and have that recognition in front of that audience was just a very, very humbling experience. And there to share it with me was my wife Monika, who had made it all possible.

And in my acknowledgement and I think that's something that sort of reflects the success I've had in my career is that I've always worked with really good people and I guess my skill hasn't been so much an engineering skill but getting the best out of people. I think that's probably where that recognition really falls and that was an acknowledgement I made when I received that award, the National Professional Engineer of the Year award, that was in 2012.

So, they were two awards that really stand out.

Another award I received was the Gold Medal Award from Dr Ken Michael who, as you know, was the Governor of Western Australia, but he was also a predecessor of mine as Commissioner of Main Roads and it was extra special to receive that award from Ken. That award was for recognition for outstanding service for public works engineering. It originated in the Institute of Public Works Engineers, Australia. But to receive that award from Ken, in front of his successor Governor, once again another distinguished audience, it was just a wonderful humbling sort of experience. There were others but they were probably the peak awards that really meant something.

DAA Yes. It's interesting that you mentioned that the most important aspect really is managing people?

MH Mmm, yes.

DAA At my level, which was somewhat below yours, I found it was fundamentally the same issue that without people you couldn't achieve much could you?

MH Absolutely right and I've been fortunate that I've been surrounded by very good people.

DAA Yes indeed. So, moving on to talk about people then, which people in particular have been significant in your life?

MH In my career or in my life?

DAA Well your life and your career, yes.

MH There haven't been many people that have sort of helped shape my career. There were people during the course of my time in the Public Works - that was the early days of engineering - and I think I probably learnt more from people on what not to do. You know, that sounds terribly negative and there were some wonderful people that I worked with but I learnt a lot from watching people do the wrong thing.

I had bosses who were very proud of the fact that they'd never make a wrong decision but it just took them for ever to make one. Sometimes they never made decisions and my philosophy has always been, look,

if you're in a situation where you're in the field you're having to make decisions - and a lot of the times they're very important - very quick decisions if you get two out of three right then you're doing a pretty good job.

DAA Not a bad average?

MH Yes, that's right and you learn from the ones you get wrong so that you make less mistakes. But I also saw managers make a mess of things by the way they treated people. I learnt a lot from that.

The way some of my managers spent more time managing upwards than managing downwards, I learnt some very powerful lessons from watching those people work. When I left the Water Corporation I had held some very senior positions. I'd had three General Manager positions in the Water Corporation, so when I then went to Main Roads holding the most senior position, I could actually apply the things that I'd learnt over 38 years in the Public Works Department, the Water Authority and the Water Corporation. And that gave me a lot of confidence. When you're coming up with ideas [you] need the confidence to be able to apply them And I learnt a lot from people making mistakes, seeing them do the wrong thing and vowing to myself that I'd never let that happen in an organisation that I looked after.

DAA Sure.

MH But I had some wonderful bosses. They had funny ways sometimes but they managed to bring out the best in me.

I remember one incident when I was a fresh young construction engineer put in the field with significant responsibilities with six or so large projects happening over a large geographic area. I was the Resident Engineer and I'd been there two weeks and I was on the phone to someone in my office, when this particular gentleman who was a very senior engineer in the Construction Branch, came in to the office, put his finger on the phone so that I couldn't speak anymore,

and said 'this is urgent you've got to get out of here'. And it was such a piffling thing I thought 'gee, how rude can you get'?

But this particular gentleman then asked me - a whole range of very detailed questions about progress on my projects. The questions ranged from 'what's the hourly rate for installing the sewers' what's this, what's that, 'what's your expected outturn this month'. He asked me all these questions that I could possibly never have known in that short period of time. And I thought 'you old so-and-so' to a point where I thought if he ever came in and did that again or he asked me any questions like that I'd be ready for him. And what I did I found out what the hourly rate was; I found out what the answers were to all the questions he had asked for all my projects and I had all those things stuck them on my wall so that, if ever he rang, I'd have my finger on it. And, of course, doing that I was on top of the job.

So, the next time he came and he asked me those questions - and I think he'd mellowed a little bit with regard to what he thought was urgent - I had all the answers and he and I had a wonderful relationship that saw me through the construction phase of my career in a very well-balanced way. I always remember that incident and How it feels to be well and truly on top of a job.

The other things that happened were I was I had a career aligned which saw me going up the ladder in the field related area and I was asked to move into an executive position and I sort of rebelled against that and I spoke to this same gentleman, and his boss, and I said 'look, I don't want to move into the pen-pusher area'. But it was a call from the boss, you know. He wanted me to be in that area and I resisted that but they said 'it'd probably be good for you'. Anyhow, I took the plunge and it was. It was one of the best things I ever did because it got me to a level where I could see what was going on in the whole organisation instead of my little patch.

So, that's another sort of a time and an area and a consequence that had an impact.

DAA Yes, yes. Well, as you say, you don't mention names but you remember the incidents?

MH Oh, and I remember the people.

DAA Yes, you remember the people and I could tell you similar stories as well but it's not about me. So, let me come back though to individuals, do you have any individual people that you could [mention]?

MH Yes, Dr Ken Michael.

DAA Right.

MH Ken Michael. I mean he's an outstanding, outstanding person but I'd known him long before. I knew him when he was in Main Roads even though I was in the Water Corp and I had a good relationship with him and interactions on the Quality Council that existed at the time. He and I shared common values although he was a couple of pegs well above me and when he was Governor and I was Commissioner of Main Roads we often had chats about things that happened in the past. He provided a bit of guidance and confirmed my approach. I'm very strong on values. Not just having them but making sure people behave in accordance with those values and have people in the organisation realise how important those values are. And Ken was of a similar mindset and he was just so pleased that I was carrying on something that he thought was very important.

He also gave me some advice about how to deal with political situations that arose from time to time. He was a wonderful mentor.

DAA Yes. I had the pleasure of doing an oral history with Ken. Delightful chap. I really enjoyed that.

Okay, anyone else?

MH There are those with a negative connotation which is unfortunate because I tend to remember how I was 'duded' by those people. And how you react to that was also a valuable lesson that I learnt. When people worked with me and they felt that they'd been duded because

they didn't get a promotion, I would pull them aside and say 'listen, what you've got to do now is demonstrate very clearly how that was the wrong decision; work your butt off and show that that was indeed the wrong thing that they had done. So, that was an approach that I passed on to others.

DAA Yes, not everybody's positive but you hope to learn from it don't you?

MH Mmm, yes.

DAA One of the things I taught my children was although they were treated scrupulously fairly that life is not necessarily fair.

MH Yes, that's right. That's right.

DAA And once you get used to that idea it gets a lot easier doesn't it?

MH Yes. Another person, of course, my Father had an impact. He was a little distant my Dad but he taught me things like honesty and integrity. He was an accountant and because he was an accountant, he almost had an auditor's mind and he taught me to always err on the side of righteousness, to be always honest and correct, and that guided my life a little bit too.

DAA Yes, fundamental integrity?

MH Yes.

DAA Yes. Okay. What about your wife?

MH Oh well. She's the most important person in my life. I couldn't have achieved these things without her. I get emotional about it.

DAA Yes, well you're allowed to because it's an emotional commitment isn't it and you've mentioned her many times throughout these interviews [that] we've done?

MH Yes. I think she was aware of my desire to do construction work. She knew that was going to have an adverse impact on her lifestyle and possibly the kids but she went through that. I mean there were

wonderful positive things about working in the country, but she was always there supporting me and our two boys.

DAA She must be a valiant spirit because she would obviously pick herself up and take the family and go to where you wanted to go?

MH Yes, well we had - I think I might have mentioned before - we had nine moves in 10 years.

DAA Yes.

MH We had the kids, we had dogs - we had Irish Setters, we had a fish tank, we had a cat. Can you imagine moving nine times in 10 years?

DAA Yes, yes.

MH And that was all over the state you know from Kununurra down to Wagin and the southern parts.

It's funny I get emotional about that because when I did my farewell speech at Main Roads, I was fine and then I came to the point where I had to thank her.....

DAA Mmm, well, it's a funny thing isn't it? I have found, as I've grown older, I tend to be more emotional and I think it's because you can look back and you can see things in their perspective?

MH Yes.

DAA Yes. Well it's alright to be emotional - perfectly alright.

Okay, so your current roles then. What are they?

MH I'm Chairman of the Energy and Water Ombudsman Board which is a public sector board. It's responsible for dealing with all the customer complaints that aren't satisfied by the utilities such as the Water Corp, Western Power, Alinta Gas. There's some 35 member-organisations and there are some 5,000 complaints a year. The whole idea is that it's set up as a simple alternative dispute resolution process. We use the office of the Ombudsman - the Parliamentary Ombudsman - and his staff so there's some 13 or 14 people that get involved with those complaints. It's a very interesting role to have because it's like

coming full circle on my career because I was General Manager of Customer Service in the Water Corporation where I set up a lot of things like the Customer Charter and the Customer Contact Centre. All those things which are there to deal with customer complaints.

I've been there since 2015 so that's three years now and I enjoy that immensely. A very good Board. Once again surrounded by good people doing good work. I'm still a member of the Infrastructure Sustainability Council of Australia. I've had a long interest in Sustainability particularly as it applies to delivery of infrastructure. I was able to carry that interest over from Main Roads. So, when the Australian Green Infrastructure Council - which became the Infrastructure Sustainability Council of Australia - was established the Chairman rang me when I was still Commissioner of Main Roads saying 'would you like to be on the Board'? And I finished with Main Roads and became an independent member and subsequently I became a representative of Laing O'Rourke, the organisation that I now work for. But that's five years ago now. I will finish in October this month. So, I've enjoyed that.

DAA At the risk of sounding facetious it's self-sustaining?

MH Yes, that's right. A self-sustaining organisation, yes.

DAA However, it's obviously a quiet achiever?

MH Yes.

DAA Good.

MH Another area I'm involved in I am a Trustee on the Foundation of the Institution of Public Works which is a foundation that makes sure that that money gets invested properly in the promotion of public works engineering.

When I retired, at the end of 2012, I set up my own engineering consultancy that was based around collaborative infrastructure delivery and strategies to achieve that. And I've picked up a bit of work and have done a few interesting projects, but my mainstay since

2014 has been as a part-time employee of Laing O'Rourke where I'm employed as a Strategic Advisor, Transport. Laing O'Rourke is a large international contractor and my role was providing the bid teams and the relevant people in the infrastructure agencies; finding out what they think, how to go about it and helping provide some success for the organisation. It's not just me. Again, it's around some very, very good people.

We've picked up the North Link Stage Two Project. It's a \$400,000,000 project. The Stadium Station project was done by Laing O'Rourke. It was an Alliance Project so I could bring my alliancing knowledge to that. And we're currently bidding for a number of road and rail projects.

DAA Good. Alright. So, your further plans for the future then?

MH Well, I mentioned I'm stepping down from the Sustainability Council. I wouldn't mind picking up another couple of Board positions but I'm finding I don't get the sense of achievement that I used to get from doing that work so I'll probably toddle along as I'm doing. I do what are called Gateway Reviews I don't know if you've heard of those?

DAA No, I haven't.

MH The Department of Finance organises what are called Gateway Reviews which is a British-based system which looks at the delivery of a project at different stages - at different gates - so the first one is the business case, and then there's getting ready for market, and then there's the delivery phase, and then there's a benefits realisation phase, and so on. The idea is that a team of people, set up by the Department of Finance and Treasury - and that can be experts from all over Australia - form a team of about four or five people and they review a project at any one of those gates to see if it's ready to go to the next gate.

It's very quick. It's a five-day really intensive review. It's not an audit it's just a review and they come up with recommendations which go

to the organisation that requested the review. The recommendations are categorised red, green or amber. If you get too many reds you may have to stop the project.

But it's very high level it's very efficient and the state government now says that all projects over I think it's \$100,000,000 - or it's \$10,000,000 for IT projects - have to go through this Gateway Review process. It's to make sure the tax payers' money is being spent properly.

DAA Sure.

MH So, I get involved. You have to do a course and I've done that. I'm about to do a team leaders' course too so that you can chair these. And they pay very handsomely.

DAA Always a good thing.

MH Yes, so I do that through my consultancy. And I've done three this year. And that's interesting and keeps you current too.

DAA Well it does but it also uses your expertise and your past experience?

MH Mmm, yes.

DAA Believe it or believe it not in the oral history business I find that if you've got a bit of grey hair and some experience it does help a lot you know because you can relate to people, and their problems, can't you?

MH Yes, and that's what they pay me for.

DAA Yes indeed. Indeed, and it used to fascinate me that people would pay me for these things and I used to enjoy doing them you know. It was good fun.

MH Yes.

DAA Alright. So, anything else you've got in mind for the future?

I can't see you going off and playing bowls by the way.

MH No. Well I play golf which is close but I've got a list that long from my good wife which I plough through in my spare time.

DAA Good.

MH With golf I'm still striving to achieve my potential.

DAA Are you any good?

MH No, no not really. I've got a handicap of 16. Well, just to finish on golf the ambition of all golfers is to be able to go around 18 holes and play their age.

DAA Is that right?

MH Yes, so that 72 is par for the course so if you're under 72 and you can go around in under 72 then you've achieved that. And I've just realised that to achieve that ambition I'm going to have to play until I'm at least 90 years old!

DAA Alright, we've touched on a little bit on your past working life but what are the key lessons that you've learned that you would pass on to newcomers into our profession?

MH The thing that sticks in my mind and I mentor a number of people and I always pass this advice on. First of all, don't limit yourself. If you've got a fixed career path in mind don't limit yourself to getting to the top in that area. Open up the doors, face the challenges, because often there's a challenge going on out there that you've never even thought about, that you might be horrified at the thought of taking it on - take it on!

I've found that nowadays people aren't as loyal to an organisation as they used to be, and I think people today are more loyal to their CV. But the same principle applies if you continue working for one organisation. If you have an opportunity to move out of the area that you feel comfortable in to learn a bit more about other areas then take that opportunity. You know, I had examples where I was told to go a certain way and I didn't have the choice but it turned out the best. Sometimes I did have the choice for a number of the moves I made.

So, instead of going up the ladder like that you go up the ladder like that.

DAA Sideways, yes?

MH And that offers another thing and that is you've got this very, very wide scope of things that you can do. I mean when I started engineering, I wanted to build bridges so what's the first thing I do? I install water supply waste-water treatment plants. It's so far removed from what I thought it was all about. It's so wide in scope, engineering, and that's just civil engineering let alone chemical, mechanical, electrical.

So, I say to any young engineer 'don't limit yourself to what you think your career should be. If you broaden out, you'll do better and you'll have a more satisfying career'. But that's my view. It's not always the case.

DAA Well I can support it too and I can also say that one of the most satisfying things I've ever done is pick up some of the really rotten jobs that nobody else wants and do them well.

MH Yes. Yes, and it's amazing what you learn.

DAA Yes, indeed.

MH One of my first jobs as a cadet engineer - now this is going back some time - was to do sun prints. Do you remember sun prints where you didn't go to a photocopier the way you do now? If you had a plan - for a water supply extension - you'd have to draw it in ink and then to get copies of it you'd go out with photographic paper in the sun.

DAA Oh yes.

MH Right, and you'd hold it out there and you'd time it and it'd be eight and a half seconds and then you'd bring it in and then you'd put it through.

DAA Yes, feed it through the dye line [developer]?

MH Yes, that's right and I was told 'righto, you've got to do these for these extensions' [and] I thought 'I haven't spent four years doing engineering study to do this rubbish'.

However, I learnt so much from doing that. It's like you said 'you do it well' and the boss will realise you do things well and that gives you some satisfaction and he will probably give you more interesting things to do. Well I was only a young kid then.

DAA Yes, and you get to look at a lot of interesting prints, don't you?

MH Yes. Well you do. You're doing something different and you're learning and that applies so many times and there were so many crap jobs that you had to do to get to where you are.

DAA But you 'show willing' don't you?

MH Yes.

DAA Alright so if you were a newcomer to the profession then, what's the key point?

MH The key point is 'keep an open mind'. Base your progress on how well you get people to work with you and that applies at all levels. My view is that leadership isn't just for people at the top, even the tea lady can demonstrate leadership.

DAA Absolutely.

MH And if that's a message that people can understand then that's a huge step, no matter where you are in your career.

DAA I think that brings you back to the point you made earlier about values. If the organisation's values permeate right through from top to bottom then wherever you sit in that organisation when you have to make a decision it's driven by your values?

MH Yes, yes, yes and as long as the people that you work for, and with, share those values then you've got a wonderful culture.

DAA Mmm.

DAA Alright, well, I think we've about done it Menno.

MH You think so?

DAA Yes, I do.

MH Okay.

DAA Is there anything you'd like to add?

MH No, other than I think I've been very, very fortunate you know in so many ways. I think the old saying that 'the harder you work the luckier you become' is true.

DAA Was it Westinghouse [who] said that?

MH I don't know but it applies to the entertainment industry - it applies everywhere.

DAA Well it's so true isn't it? It brings you back really to the professional view doesn't it that you work at what you do for a profession because you love doing it?

MH Yes.

DAA To me this is the final questions for you as a professional engineer that you've been - have you enjoyed it?

MH All. Every day. I've never had a day where I've dreaded going into work. And that was even in the 'hurley burley' days when I had a pretty tough Minister and I used to wonder what was coming next. But it was always a challenge because it was always a sense of achievement if you could keep her happy.

DAA Right. Just good fun?

MH Yes.

DAA Okay. Well on that note then Menno I'd like to thank you for your time.

MH Well that's good. It was a pleasure.

DAA Been most interesting.

MH Well it's made me think a little bit too.

DAA Good, okay.